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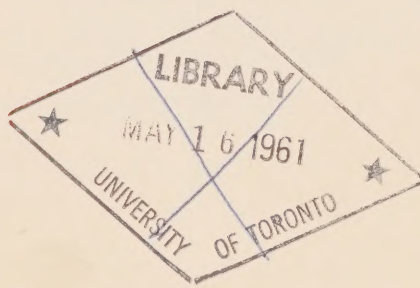
Canada. Interdepartmental
Skilled Manpower Training
Research Committee.

RESEARCH PROGRAM on the
TRAINING OF SKILLED MANPOWER

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ACQUISITION OF SKILLS

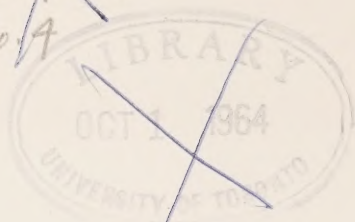
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- No. 1 Progress Report (1957).
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- No. 3 Technological Changes and Skilled Manpower: The Household Appliance Industry (1958).
- No. 4 Acquisition of Skills: A Pilot Study of the Education and Training Background of a Sample of Tool and Die Makers, Sheet Metal Workers, Floor Moulders, Draughtsmen and Electronic Technicians in the Toronto and Montreal Labour Markets (1960).
- No. 5A Vocational Training Programs in Canada—Technical and Trade Training—Publicly Operated (1958).
- No. 5B Vocational Training Programs in Canada—Commercial, Service, and Other Occupations—Publicly Operated (1959).
- No. 5C Vocational Training Programs in Canada—Agriculture—Publicly Operated (1959).
- No. 6 Outline of Technical Training in the United Kingdom (1958).

No. 4—ACQUISITION OF SKILLS:

A Pilot Study of the Education and Training Background of a Sample of Tool and Die Makers, Sheet Metal Workers, Floor Moulders, Draughtsmen, and Electronic Technicians in the Toronto and Montreal Labour Markets.

Department of Labour, Canada, in co-operation with federal and provincial government agencies and other groups.

June 1960

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FOREWORD

This report is one of a series of studies carried out under the Skilled Manpower Training Research Program begun by the Federal Department of Labour in 1956 in co-operation with other interested federal and provincial departments and management and union organizations. The research program is under the general direction of the Interdepartmental Skilled Manpower Training Research Committee and its aims and objectives are set out in detail in Report No. 1 of this series, entitled "Progress Report", issued in June 1957.

The broad purpose of the "Acquisition of Skills Study" was to obtain some insight into the ways in which workers in selected skilled trades acquired their skills. Other types of information were also sought, such as the opinions of workers as to what was the most useful part of their training, how workers regarded their trade in relation to other occupations, how technological changes were affecting training requirements, and the sources of workers for skilled trades. It was felt that data of this kind would be of value in suggesting ways in which the education and training of workers for the skilled trades could be improved and would, therefore, assist educational authorities, industry, labour, government, and other interested groups in their efforts to meet industry's changing requirements for skilled and technical manpower.

This report was prepared under the direction of Mr. J. P. Francis and the supervision of Mr. P. Cohen. The interview questionnaire was developed by Messrs. John Clake and Bruce McFarlane who also conducted the field interviews in the summer of 1956, assisted by Mr. Hugh Savage. Analytical concepts and methodology were developed by Mr. J. V. Klein who also contributed to the writing of the report. The summary of the findings, which forms Part 1 of this report, was prepared by Mr. P. Cohen. The valuable assistance of Messrs. H. R. Woods, J. K. MacDiarmid, P. Asselin, A. E. Styles, H. Postner, W. G. Craig, P. R. Schweitzer, and E. Monette on various phases of the project is gratefully acknowledged. The report was edited and prepared for printing by Mrs. D. French.

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INTRODUCTION

This report presents a summary of the survey findings, followed by tabulated data relating to each trade. A further, detailed analysis of the tabular material is contained in a supplementary report for each trade, available on request from the Economics and Research Branch, Department of Labour, Ottawa. Each supplement also includes a sample of replies made by tradesmen concerning the most useful part of their training, and their views on what is desirable in the way of education and training to attain competency in the respective trades. Also available is a separate document, entitled "Technical Notes", which explains in detail the terms, concepts, and methods used to classify and analyze the data.

Data on supervisory personnel in the various trades surveyed have been excluded from this report because of the relatively small numbers involved. They are, however, included in the supplementary reports. The findings for supervisors are very similar to those for the tradesmen.

A partial attempt is made in this report to assess the implications of the data presented in terms of what is desirable in the way of training and education in the acquiring of a particular skill. Further consideration will be given to the implications of these findings in a Progress Report now being prepared on the Skilled Manpower Training Research Program.

Since this was the first study of its kind, and necessarily experimental, it was thought advisable to cover only a small number of skilled trades and workers and to limit the study to the Toronto and Montreal areas. The findings, therefore, refer particularly to these two areas, but they may be suggestive of the situation in the country as a whole, since the sample includes workers trained in many parts of Canada, as well as those from other countries.

The study was experimental in two important ways: in terms of developing procedures for doing a study of this kind, and in terms of developing an analytical framework for these kinds of data. For the latter reason, the analyses of the individual trades are perhaps more elaborate than is warranted by the size of the sample. However, the detailed form of analysis was retained in an attempt to throw at least a partial light on broad and significant questions.

The skilled trades were selected for study on the basis of one or more of the following criteria:

1. The skills required in the trade have been affected by technological changes;
2. The trade is representative of an important occupational group;
3. The trade is likely to grow in importance with increasing mechanization of industry;
4. The trade is one which is frequently considered an apprenticeable trade.

Employing these criteria, the following five trades were chosen: electronic technician, floor moulder, senior draughtsman, sheet metal worker, and tool and die maker.

To a greater or lesser degree, all five trades meet the first criterion; that is, the skills required for competent performance of the duties of the trade have been affected by technological changes that have occurred in industry.

The second criterion is also met by all five trades. Floor moulding, sheet metal working, and tool and die making are representative of the metal working trades, an important group which accounts for a large percentage of tradesmen in the manufacturing industry. Senior draughtsmen and electronic technicians are representative of a group of trades lying between the skilled tradesman level on the lower limit and the professional engineering level on the upper limit.

The third criterion is most clearly met by the electronic technicians who will probably be in greater demand with the increasing use and manufacture of electronic equipment.

The fourth criterion is met by tool and die makers, sheet metal workers and floor moulders, trades that have been traditionally considered as apprenticeable.

The "Acquisition of Skills Survey" was carried out in the summer of 1956 by means of interviews with tradesmen, supervisors, and management officials in a variety of establishments and industries. Approximately 800 qualified workers were interviewed in about 75 establishments in Toronto and Montreal.

In selecting the industries and establishments to be covered for each trade, an attempt was made to have as broad an industry coverage as possible within the limits imposed by the manpower and time available for the study. The number of workers to be selected from a particular industry and establishment was related to the number employed in that trade in the establishment and in the industry of which the establishment formed part.

In selecting the actual workers to be interviewed, all of the skilled tradesmen in the trade or trades being surveyed in a particular establishment were first identified. The interviewer then selected a certain number of workers from this group on a random basis.

To ensure that workers in each trade selected from the various establishments and industries would be comparable with each other in terms of skill, the appropriate officials in each establishment were provided with occupational descriptions which described the duties that qualified workers in the trade were expected to be performing. The occupational descriptions, which were developed by the Economics and Research Branch, are contained in Part 2 of this report.

As has been mentioned, information was obtained from individuals in the sample by means of personal interviews. The limitations of the interviewing technique in a survey of this kind must be kept in mind, particularly in respect to data that are necessarily subjective in nature. Interviews can be expected

to yield quite reliable data with respect to questions of a factual type, such as those dealing with an individual's education and training background. Even here, the accuracy of the response is limited to some extent by memory. The interview technique, however, has more serious limitations with respect to questions of a subjective nature.

In this latter area, an effort was made in the survey to learn something about the attitudes of workers towards their own trade by asking them to rate their trade with a number of other occupations on three points—"preference", "prestige" and "occupation for son". Workers were also asked to rank, in order of importance, the reasons why they entered their trade and to comment on what education and training is desirable to acquire competency in the trade.

The attitudes of workers towards their own trade will tend to be influenced by a whole complex of factors which are extraneous to the occupation itself and which may vary from individual to individual—working conditions, supervision, compatibility with fellow workers, personality factors, etc. Responses may also have been coloured by what the interviewee thought the interviewer would like to hear. In this respect, the fact that native Canadians conducted the interviews may have resulted in differences in response as between immigrants and non-immigrants.

There may be an unconscious tendency for some tradesmen in ranking the reasons why they entered the trade to rationalize their responses. This is not to say that the responses have no validity but rather that the conclusions drawn from these results may be biased to the extent that rationalization has taken place.

Comments by tradesmen on what is desirable in the way of education and training to attain competency suffer also from some degree of subjectivity. There may be a tendency on the part of some individuals to recommend their own educational and training experience rather than to assess that experience in purely objective terms. Despite this limitation, it was felt that the thoughts of the interviewee regarding education and training would be of interest and value to all those concerned with vocational training.

The workers interviewed in the sample were all males. The trades of tool and die making, floor moulding and sheet metal working have traditionally been male fields of work and the likelihood is that they will continue to be so. Male workers have, up to now, also predominated among electronic technicians and draughtsmen. There is every reason to believe, however, that in the future women will be found in greater numbers in these two fields of work. The fact, then, that no women turned up in the sample for these two occupations does not mean that they are automatically closed to them. The suitability of women for jobs at the technician level in the scientific and engineering areas is beginning to be recognized and the probability is that there will be increased employment opportunities for women at the technician level.

Part 1—SUMMARY OF FINDINGS

For a clearer understanding of the general findings outlined below, it will be useful first to comment on two basic concepts—"formal training" and "informal training"—as they were used in the classification of tradesmen.

It will be noted in Tables B and C throughout Part 2 that an attempt has been made to group those tradesmen with common training and educational backgrounds, in order to see what patterns, if any, are predominant. Two broad categories of tradesmen were established: those who had had some formal training and those who had acquired all their training informally.

The concept of formal training pertains to three types of training: (1) pre- or post-employment courses that were designed specifically for the trade in which the tradesman was engaged at the time of the survey or for a related trade; (2) courses that, although not designed specifically for any one trade, were trade-related; and (3) organized on-the-job training received in the trade or a related trade. A worker who had any one of these types of training, regardless of amount, was classified as formally trained. All other workers were regarded as informally trained, i.e., they had acquired their skills wholly through informal on-the-job training. By definition, the term *formal training* includes two classes of workers—those who had received their training wholly by formal means, and those who had acquired their skills through a combination of formal and informal training. The amount of formal training received by each type of tradesman is dealt with in Table F throughout Part 2.

Thus the pattern tables, B and C, attempt to present in summary the common patterns of education and training for Canadian and non-Canadian trained tradesmen.

High Proportion of Immigrant Tradesmen

About 35 per cent of all tradesmen interviewed in the five trades had received the greater part of their training outside Canada. In this report, this group is referred to as "non-Canadian". This high proportion reflects the heavy reliance of Canadian industry on immigration as a source for skilled workers, at least up to the period of the survey in 1956. Non-Canadian trained tradesmen were found in substantial numbers in all five trades, but were most heavily represented in the draughting occupation, in which they made up over half the sample. In the tool and die making trade, they formed 37 per cent. Percentages for the other three trades were: electronic technicians, 31 per cent; floor moulders, 28 per cent; sheet metal workers, 22 per cent.

It is interesting to observe that, for these five occupations, the extent of immigration was closely related to the level of skill, that is, the more highly

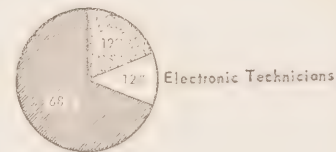
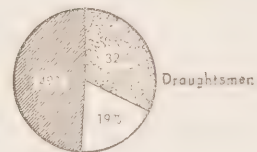
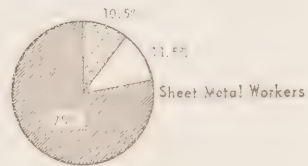
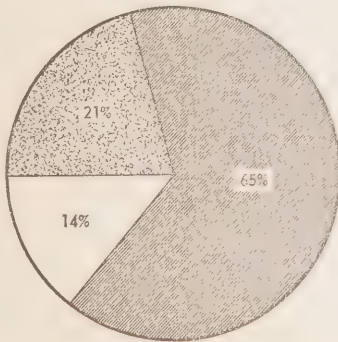
Chart 1

WHERE TRADESMEN RECEIVED THEIR TRAINING

CANADA

UNITED KINGDOM

OTHER



skilled the trade or occupation, the greater was the dependence on immigration as a source for skilled workers. This suggests that, up to the time of the survey, training facilities in Canada were failing to keep pace with manpower requirements, and this was particularly pronounced in the more highly skilled occupations. There is also evidence to suggest that, apart from the availability of training facilities, difficulty was being encountered in attracting a sufficient number of Canadians into the trades of floor moulding and sheet metal working, and this was an additional factor in the use of immigration to meet manpower needs.

Where Non-Canadian Trained Tradesmen Received Their Training

The following table and chart illustrate the high proportion of tradesmen in this survey who received the major part of their training in the United Kingdom. In over-all terms, the U.K. accounted for 57 per cent of the tradesmen, continental Europe 39 per cent, and the United States 4 per cent. U.K.-trained tradesmen constituted the majority of the foreign-trained workers in every trade except sheet metal working.

Non-Canadian Trained Tradesmen by Location of Training

Occupations	United Kingdom	Continental Europe	United States	Total
Floor Moulders.....	18	8	1	27
Tool and Die Makers.....	33	19	3	55
Senior Draughtsmen.....	47	33	1	81
Electronic Technicians.....	25	17	4	46
Sheet Metal Workers.....	13	16	0	29
Total.....	136	93	9	238

Age Distribution

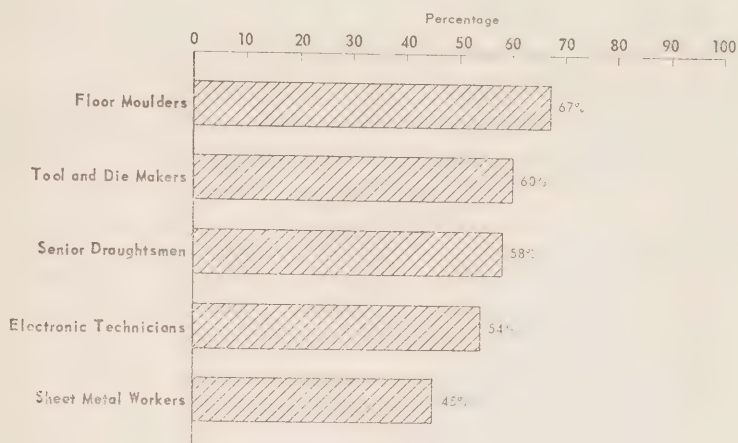
The table below presents the age distribution of Canadian and non-Canadian trained workers for each of the five trades. It will be seen that the Canadians were generally younger than the non-Canadians in all trades except that of sheet metal worker.

Of interest is the high proportion of younger workers in the occupations of electronic technician and draughting in contrast to the other trades. A majority of electronic technicians were in the age group 20 to 34.9—71 per cent of the Canadians and 57 per cent of the non-Canadians. Half of the draughtsmen, Canadian and non-Canadian, were also in this age group.

The floor moulding trade had the highest proportion of older workers, that is, those in the 50-and-over group, followed by the tool and die makers. This obtained for both Canadians and non-Canadians.

Chart 2

PERCENTAGE OF NON-CANADIAN TRAINED TRADESMEN TRAINED IN THE UNITED KINGDOM



There was a higher proportion of non-Canadians than Canadians in the 50-and-over group in all trades except draughting, where the proportion was just about equal.

Age Distribution—Five Trades

Occupation	20-34.9 Years	35-49.9 Years	50+ Years	Total	Median Age
	%	%	%		
Floor Moulders					
Canadian-trained.....	37	28	34	100	42.5
Foreign-trained.....	19	44	37	100	46.5
Tool and Die Makers					
Canadian-trained.....	44	38	18	100	36.3
Foreign-trained.....	20	44	36	100	44.4
Senior Draughtsmen					
Canadian-trained.....	52	38	10	100	34.7
Foreign-trained.....	49	42	9	100	35.1
Electronic Technicians					
Canadian-trained.....	71	27	2	100	31.3
Foreign-trained.....	57	30	13	100	32.7
Sheet Metal Workers					
Canadian-trained.....	40	49	11	100	37.9
Foreign-trained.....	45	28	28	100	37.5

Formal Training

The pattern tables B and C indicate that there was a greater emphasis on formal training, particularly of the apprenticeship kind, in the case of the non-

Canadian group, and more on informal training in the case of the Canadians. However, most of the Canadians in each trade received at least some formal training, the proportion varying from trade to trade. It was notably high in the case of draughtsmen, electronic technicians and tool and die makers, in that order; and low in the case of sheet metal workers and floor moulders. In contrast, in all trades a higher proportion of non-Canadian than Canadian-trained tradesmen received some formal training.

One explanation of the high incidence of formal training among the non-Canadian trained tradesmen may lie in the recruiting practices of immigration and company officials. These officials would tend to encourage skilled and technical personnel who hold a certificate, such as the Ordinary National or Higher National Certificate in the United Kingdom, to go forward with their plans for emigrating to Canada, and, conversely, to discourage others who do not have evidence of formal training or apprenticeship completion. The granting of a national certificate in the United Kingdom usually denotes that the holder has received a substantial amount of formal training. Similarly, tradesmen and technical workers from continental Europe may also be required to produce papers certifying that they have served an apprenticeship or have graduated at a certain level from a technical college or school. An equally valid explanation is that there is a much stronger tradition of apprenticeship and other forms of organized training in the United Kingdom and continental Europe than in Canada, and this would also account for the greater incidence of formal training among the immigrant group. The way in which immigrants are selected for employment in Canada may, however, exaggerate the incidence of formal training that exists in overseas countries.

As stated previously, the amount of formal training received is not indicated in the pattern tables B and C but is shown in a later table, F. Two general conclusions may be drawn from Table F: first, that the majority of workers, Canadian and non-Canadian, in each trade had received at least two years formal training; and second, that in every trade the tradesmen who had been trained abroad had received more formal training than those who had been trained in Canada. For example, all non-Canadians classified as formally trained in the trades of floor moulding, sheet metal working, tool and die making and draughting had received at least two years formal training. Comparable figures for Canadians in these trades were 98 per cent, 45 per cent, 76 per cent and 84 per cent. A larger proportion of non-Canadians than Canadians had received four or more years of formal training in all trades except that of electronic technician. In the latter case, 40 per cent of the Canadians had this amount of training compared with 33 per cent of the non-Canadians. Trades that ranked highest among Canadians in terms of the amount of formal training were floor moulder, tool and die maker and draughtsman. Sheet metal workers ranked lowest—only 45 per cent had at least two years of formal training.

Informal Training

Informal training was a significant factor in the training of Canadians. Tables B and C show that 44 per cent of the Canadian sheet metal tradesmen, 35 per cent of the floor moulders and 12 per cent of the tool and die makers received their training wholly through this means. An insignificant number of electronic technicians and draughtsmen were in this category. Comparable figures for the non-Canadian tradesmen were much lower: sheet metal workers, 10 per cent; tool and die makers, 9 per cent; and floor moulders, 7 per cent. No non-Canadian draughtsmen and only one electronic technician were in this category.

The foregoing by no means gives the full picture of the role played by informal training, since it does not take into account the considerable informal training experience of tradesmen categorized as formally trained. For example, in the case of Canadian draughtsmen, 68 per cent of those classified as formally trained acquired their skills through a combination of course work and informal on-the-job training. Even in the trade of tool and die making, which is traditionally an apprenticeable one in Canada, one third of the formally trained Canadian tradesmen had a combination of formal training (mainly trade-related courses) and informal training.

It is evident then that, so far as the Canadian workers are concerned, and to a lesser extent the non-Canadians, the incidence of informal training is much greater than the concepts of informal and formal training used in this survey would seem to indicate. The reality of the situation is that many Canadian tradesmen acquire their skills either through informal means alone or through a combination of formal and informal training.

Common Patterns of Education and Training

In addition to showing two broad groups of tradesmen, those who have been wholly informally trained and those who have had some formal training, Tables B and C also group the tradesmen according to common educational and training backgrounds, to see whether any predominant patterns emerge.

In setting up the sub-categories, a middle road was taken between developing classes that were too broad and those that were too narrow. If the former approach had been taken, the variations in education and training would have been obscured; too many classes, on the other hand, would have gone to the other extreme and obscured the common education and training characteristics of the tradesmen interviewed.

Each pattern is made up of two or more education and training components; for example, apprenticeship and technical school. What this means is that the tradesman has attended, but not necessarily completed, technical school: this also holds true for apprenticeship or any other pattern component.

The pattern approach is mainly useful in showing what the common patterns of education and training are in fairly broad terms. It does not,

however, give a complete picture of each particular type of education or training, since the patterns are only mutually exclusive in terms of combinations of education and training. To illustrate, apprenticeship training may appear in several different patterns; therefore no one pattern, no matter how common it is, gives the complete picture for apprenticeship. This is set forth in Tables D and E.

It should also be mentioned that because of the differences in training experiences of those interviewed, the common patterns that emerged, in almost all cases, covered considerably less than a majority of the tradesmen. This is of interest in itself, since it indicates the variety of ways in which tradesmen in the five trades acquired their skills, particularly in the case of Canadian workers.

The most common patterns for the five trades and the percentage of tradesmen accounted for by each pattern are given below. In the case of Canadian-trained tool and die makers, there was no one common pattern, four main patterns were followed, each of about equal importance. The remaining patterns for each trade are shown in the tables themselves and reveal a good deal of diversity. An indication of the extent of the diversity can be had by noting the percentage of tradesmen accounted for by the most common pattern or patterns given below. The smaller the percentage, the greater is the diversity of the remaining patterns.

FLOOR MOULDERS

Canadian: primary school and apprenticeship training—37 per cent.

Non-Canadian: secondary school* and apprenticeship—56 per cent.

TOOL AND DIE MAKERS

Canadian: (a) general secondary school and apprenticeship—8.5 per cent

(b) general secondary school and part-time trade related courses—7.5 per cent

(c) technical secondary school and apprenticeship—7.5 per cent

(d) general secondary school, apprenticeship and part-time trade-related courses—7.5 per cent.

Non-Canadian: secondary school* and apprenticeship—46 per cent.

SHEET METAL WORKERS

Canadian: primary school and informal on-the-job training—25 per cent.

Non-Canadian: secondary school* and apprenticeship—38 per cent.

DRAUGHTSMEN

Canadian: technical secondary school and part-time trade-related courses—17 per cent.

Non-Canadian: secondary school* and apprenticeship—26 per cent.

* Includes technical secondary and general secondary schooling.

ELECTRONIC TECHNICIANS

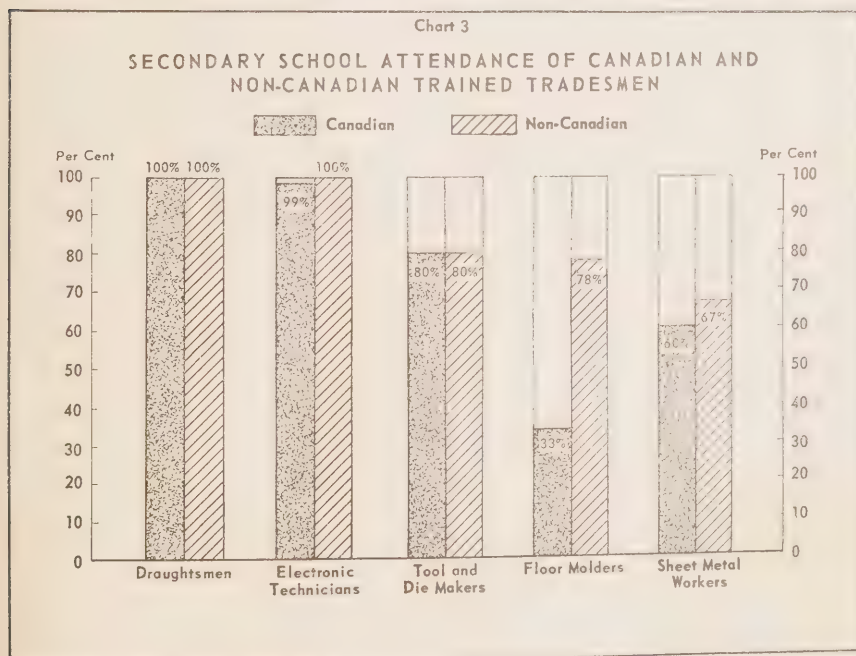
Canadian: technical secondary school and part-time trade-related courses --
17 per cent.

Non-Canadian: secondary school* and Armed Forces related training --
22 per cent.

Educational Background of Tradesmen

Virtually all the Canadian and non-Canadian trained tradesmen who were interviewed had attended and completed primary school. Although, as might be expected, fewer workers had attended secondary school, the number of tradesmen throughout the five trades who had received at least some secondary education was considerable.

Not surprisingly, secondary school attendance was highest for Canadians and non-Canadians in the occupations of electronic technician and senior draughtsman. All electronic technicians (except two Canadians) and all draughtsmen had attended secondary school. Secondary school attendance was also very high for tool and die makers—four out of five Canadians and non-Canadians had some secondary schooling. The floor moulding trade had the lowest proportion of Canadian attendance at a secondary school (one third); in contrast, more than three quarters of the non-Canadians in this trade had some secondary schooling. More Canadian sheet metal tradesmen had attended a secondary school than floor moulders—roughly, six out of ten; for non-Canadians the proportion was two out of three. It will be noted that in the



* Includes technical secondary and general secondary schooling.

three trades just dealt with, there was a greater incidence of secondary school attendance on the part of non-Canadians than Canadians.

The secondary school completion rate¹, as was to be expected, was generally much lower in all five trades than the rate for attendance. Heading the list again was the electronic technician occupation. Two thirds of the Canadian and three quarters of the non-Canadian electronic technicians had completed secondary school. The next highest trade for the Canadians was draughting, with 59 per cent completions, compared with 34 per cent for non-Canadians. The secondary school completion rate for Canadian tool and die makers was very low relative to the high attendance rate; completions accounted for only one fifth of the tradesmen. In contrast, half of the non-Canadian tool and die makers completed secondary school. Canadian floor moulders had the lowest completion rate—5 per cent, compared with 36 per cent for non-Canadians. The completion rate for sheet metal tradesmen was the same, about one fourth, for Canadians and non-Canadians. Interestingly enough, a larger proportion of Canadian sheet metal workers than tool and die makers completed secondary school.

With the exception of draughtsmen, relatively more non-Canadian than Canadian tradesmen had completed secondary school.

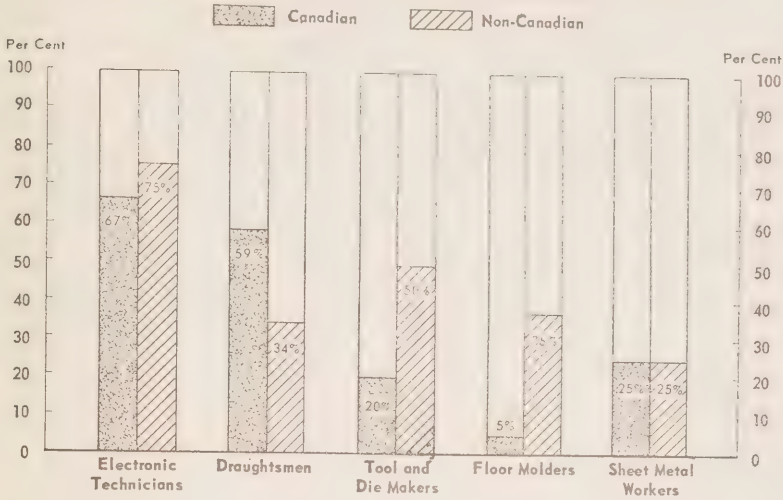
Although more Canadians received secondary schooling of the academic than of the technical type, the survey nevertheless shows the important part which technical secondary schools played in the training of Canadian tradesmen. Roughly half of the Canadian draughtsmen and tool and die makers had attended a technical secondary school, and about one fourth of the sheet metal workers. Technical schooling was a negligible factor in the case of floor moulders. The academic type of secondary education was more dominant than the technical type among electronic technicians.

The post-secondary technical institute type of training is a relatively recent innovation in Canada while in the United Kingdom and on the Continent it has a longer history. It is to be expected that, because of the technician training orientation of the technical institutes, they are of greater significance as a means of acquiring skills for the more highly skilled technician occupations than for the traditional skilled trades. It is not surprising then that technical institutes had very little influence in the training of floor moulders, tool and die makers and sheet metal workers. In the electronic and draughting trades, however, a fair number of workers, Canadian and non-Canadian alike, had acquired their skills in some measure through the medium of these institutions. It is worthy of note that in the case of electronic technicians, more Canadian than non-Canadian trained workers attended a technical institute. On the other hand, more non-Canadian than Canadian draughtsmen had this form of training.

¹ Canadians were considered having completed secondary school if they had successfully completed four or five years of such schooling. For U.K. workers, the principle followed was graduation from a secondary school at age 15 or upwards; for other non-Canadians, a decision was made based on the facts as reported.

Chart 4

SECONDARY SCHOOL COMPLETION OF CANADIAN AND NON-CANADIAN TRAINED TRADESMEN



In the analysis of the educational background of the tradesmen interviewed, a comparison was made between the formally and informally trained Canadian workers as to pre-employment education. It was expected that the formally trained would have had a higher level of pre-employment education than the informally trained and this was borne out by the analysis. It was found that a larger proportion of formally trained tradesmen in the floor moulding, sheet metal and tool and die making trades had completed primary and secondary schooling than the informally trained. In the floor moulding and sheet metal trades, twice as many formally trained workers completed secondary school as the informally trained; in the tool and die making trade the ratio was slightly lower—five to three. A similar comparison was not worked out for draughtsmen and electronic technicians because there were too few informally trained workers.

A major reason for the higher level of education among the formally trained is that, so far as organized training in industry, such as apprenticeship, is concerned, a certain level of educational attainment has usually been required, though this may vary from trade to trade. Thus education has been used in the past, and is being used to an even greater degree in the present, as a screening device for the selection of workers for formal training programs in industry. This situation has usually not prevailed in the case of workers trained through informal means. The resulting disparity between the education of formally and informally trained workers may be even greater today because of the trend in industry towards raising still further the academic entrance requirements for

in-plant training programs for the development of skilled workers and technicians. This trend is a reflection of a technology, increasing in complexity, which dictates the need for workers with a better knowledge of mathematics and science and a better educational background generally. It is only to be expected that, in these circumstances, the selection of candidates for in-plant training programs will favour those with a higher level of education.

The stress on higher educational qualifications by industry for the skilled and technical occupations points to the need for more schooling on the part of students interested in industrial employment at these higher occupational levels. Those who are currently employed in industry and who lack the necessary education are faced with the problem of being unable academically to benefit from more advanced training unless facilities are provided either in industry or public institutions to enable them to improve their academic qualifications. Because so many of its workers and new entrants do not have an adequate education, industry, in turn, is handicapped in its efforts to upgrade workers through formal training or other schemes.

Apprenticeship Training

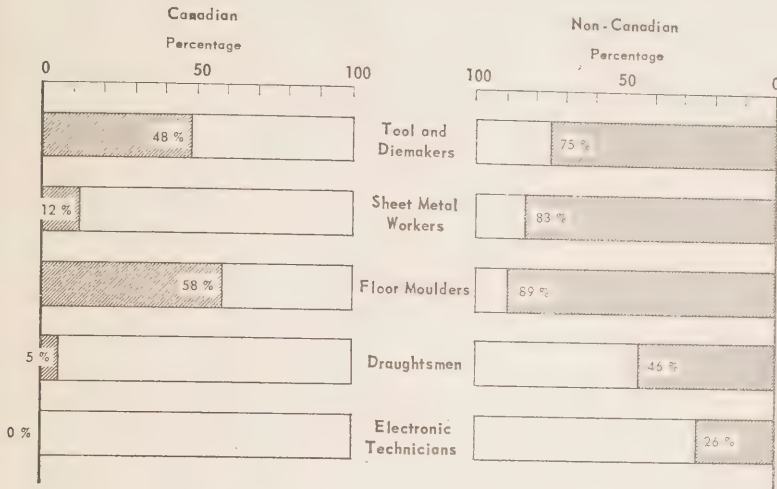
Apprenticeship as a form of training was much more predominant among non-Canadian than Canadian tradesmen. This is but a reflection of the stronger tradition of apprenticeship training in the United Kingdom and continental Europe. In the United Kingdom, for example, it is typical for a youth to enter apprenticeship at the age of 14 or 16. He receives a combination of on-the-job and off-the-job instruction for a period varying from four to six years. Off-the-job instruction is considered a necessary part of his apprenticeship. In addition, he is frequently required to attend classes at a technical college or similar type of institution for two to three evenings per week.

In the survey sample, the proportion of non-Canadian trained workers in each trade with apprenticeship training invariably exceeded that of the Canadians. This heavy incidence of apprenticeship training among the non-Canadians was especially apparent in the sheet metal trade. In this occupation, all but one of the non-Canadians had undergone training by completing an apprenticeship, whereas only 12 per cent of the Canadians had done so. In the draughting trade, also, the disproportion in apprenticeship training between the two groups was clearly evident. An almost negligible number of Canadians in this occupation had completed an apprenticeship, whereas 46 per cent of the non-Canadians had done so. On the other hand, it is perhaps not without significance that in all the trades but one, namely that of electronic technician, at least some Canadian workers had completed the apprenticeship form of training.

The incidence of apprenticeship was especially high among floor moulders; a higher proportion of Canadians and non-Canadians in this occupation had received this type of training than in any other trade. The occupation with the next highest proportion of apprenticeship-trained tradesmen was the tool and die making trade.

Chart 5

EXTENT OF APPRENTICESHIP TRAINING COMPLETION AMONG TRADESMEN



Armed Services Training

The survey shows that armed services training made a considerable contribution to the training of electronic technicians, and to a much lesser extent to the training of draughtsmen. Thirty per cent of Canadian electronic technicians had completed a related course in the armed services and over 50 per cent of the non-Canadians. Comparable figures for draughtsmen were 11 per cent and 9 per cent.

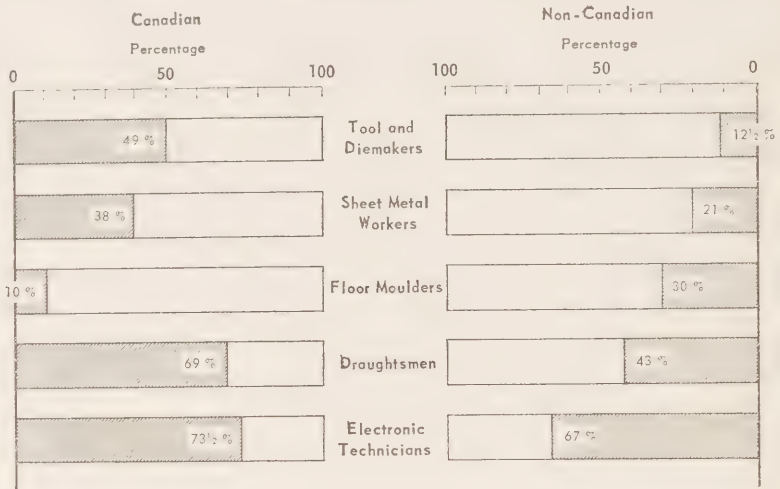
Part-time Trade-related Courses

Part-time trade-related courses had been undertaken by many workers on their own initiative in the five trades, as a means towards acquiring their respective occupational skills. This was generally much more pronounced in the case of the Canadians than the non-Canadians. In all trades except one, that of floor moulder, a higher proportion of Canadians had undertaken such courses than those trained abroad. In the trades of electronic technician and draughtsman the majority of Canadians had such training, almost half of the tool and die makers, and over one third of the sheet metal workers. For the Canadians, floor moulders ranked lowest in this respect. Part-time trade-related courses were more pronounced, in the case of the non-Canadians, in the occupations of electronic technician (67 per cent) and draughting (43 per cent).

One explanation for the emphasis on part-time courses in the case of the Canadians is that since organized trade training programs in industry, such

Chart 6

EXTENT OF PART-TIME TRADE-RELATED COURSE ATTENDANCE AMONG TRADESMEN



as apprenticeship, are less common in Canada than in the United Kingdom and continental Europe, part-time courses provide Canadians with an alternative method of obtaining the technical knowledge and skills related to the trade. However, the fact that a high proportion of both Canadian and non-Canadian electronic technicians and draughtsmen took part-time courses indicates that such training is also a function of the complexity of the basic knowledge required; the more complex this is, the less likely that it will be provided through industrial training programs. Another factor is the accelerating rate of technological change. In some occupations, such as electronic technician, new developments are occurring rapidly and these require additional training for workers to understand and master them. In some cases, such training is provided through in-plant training programs, but frequently workers take part-time courses on their own or under company auspices to keep abreast of new developments.

Trends in Education and Training

In order to determine changes in the pattern of education and training over time, and to make comparisons between older and younger workers with regard to the ways in which they acquired their skills, Canadian workers in each trade were classified according to the period in which they received the greater part of their education and training. The four periods selected for the purpose of classification were as follows: pre-1930; 1930-1939; 1940-1945; and post-1945.

ELECTRONIC TECHNICIANS

The occupation of electronic technician is a comparatively new one, which accounts for the fact that the large majority of electronic technicians appearing in the sample received the greater part of their training in the 1940-1945 and post-1945 periods.

Virtually all electronic technicians in each of the four periods under consideration attended secondary school, and the completion rate was generally very high with the exception of the war years when it dropped to 50 per cent. In the post-1945 period, the completion rate rose to 74 per cent. In this period, also, technical secondary school attendance was more common than general secondary schooling.

Part-time courses played an important role in the training of electronic technicians. This can best be seen by looking at the data for the 1940-1945 and post-1945 periods, since most of the electronic technicians in the sample were trained in these two periods. Two thirds of the electronic technicians, trained in the 1940-1945 period, had attended part-time trade-related courses. The proportion rose to over 75 per cent in the post-1945 period.

Training in the armed forces made a substantial contribution to the development of electronic technicians in the 1940-1945 period. About 50 per cent of the workers trained during this period had undertaken trade-related courses in the armed forces. The proportion fell to 20 per cent in the post-war period, which indicates that the services continued, and no doubt still continue, to play a significant role in the development of electronic technicians for the civilian labour force.

A feature of the post-1945 period was the emergence of the post-secondary technical institute type of training. About one fourth of the electronic technicians trained during this period attended such institutes. The emergence of technical institutes and other types of advanced training was in response to the need for better qualified people with a broad knowledge of the principles and practice of a particular branch of technology. Because of the rapid developments during the war years, the field of electronic technology had grown in complexity and was, more and more, requiring advanced training on the part of those who wished to enter it.

SENIOR DRAUGHTSMEN

All draughtsmen attended secondary school in the first three periods and 94 per cent in the post-1945 period. The completion rate was considerably higher in the latter period (69 per cent) than in any of the other three periods. The relatively higher level of education among draughtsmen in the post-war period reflects the higher entrance qualifications required by industry as well as the growing complexity of technology.

Attendance at a technical secondary school has risen proportionately over the years; it increased from 14 per cent in the pre-1930 period to 62 per cent in the post-1945 period.

Related organized in-plant trade training was relatively low for draughtsmen in all periods except for the depression years, when 62 per cent received such training.

The incidence of part-time trade-related courses was high in all periods.

TOOL AND DIE MAKERS

The trend towards a higher level of education is also evident in the case of the tool and die makers. The proportion that attended secondary school increased from 67 per cent in the pre-1930 period to 88 per cent in each of the last two periods. The completion rate was lowest in the pre-1930 period (13 per cent) and highest in the 1930-1939 and 1940-1945 periods (24 per cent). The incidence of technical secondary schooling increased from 1930 on, and in the war and post-war years more tool and die makers had attended technical secondary school than general secondary school.

Almost all of the tradesmen in the pre-1930 period received organized in-plant trade training, but only about 50 per cent in each of the following three periods. The most common form of such training in all periods was apprenticeship.

At least 50 per cent of all workers in all periods except that of 1930-1939 (26 per cent) had undertaken part-time trade-related courses.

SHEET METAL WORKERS

The vast majority of sheet metal workers completed primary school except in the pre-1930 period when the completion rate was 71 per cent.

The proportion of tradesmen who attended secondary school was highest in the post-1945 period, when it was 65 per cent, compared with 29 per cent in the pre-1930 period. The completion rate was highest in the 1940-1945 period. Attendance at a technical secondary school was negligible until the post-war period when 21 per cent of the tradesmen fell into this category, compared with $33\frac{1}{3}$ per cent who had attended a general secondary school.

The incidence of organized in-plant trade training declined steadily over the four periods—from 29 per cent prior to 1930 to 14 per cent in the post-1945 period.

Part-time trade-related courses were fairly common from 1930 on. In the post-1945 period, 41 per cent of the tradesmen had undertaken such courses.

FLOOR MOULDERS

The great majority of floor moulders completed primary school in all periods except that of pre-1930 when only 63 per cent did so.

The completion rate and the proportion of tradesmen who attended secondary school varied from period to period; both were highest in the 1930-1939 and post-1945 periods. Technical secondary school attendance was negligible in all periods.

Seventy-five per cent of the floor moulders in the pre-1930 period received organized in-plant trade training. This proportion fell to 50 per cent in the 1930-1939 period and rose only slightly to 55 per cent in the post-war period. In each of the periods covered, organized in-plant trade training was of the apprenticeship kind.

Occupational Choice

The non-Canadian trained tradesmen showed, on the whole, a much clearer pattern of occupational choice than the Canadians, and tended to enter their trade directly from school through apprenticeship. Many Canadians, on the other hand, had held a variety of jobs before entering the trade with which they were associated at the time of the survey. This is hardly surprising in view of the greater mobility which characterizes Canadian labour in general, and the greater opportunity for training in the United Kingdom and most European countries.

The fact that training facilities in Canada are not organized to the same extent as in many European countries is, no doubt, an important factor in the greater mobility of Canadians. Another factor in the Canadian situation is the relatively minor role of guidance, both educational and vocational, in the formative years of students and workers. It may be, however, that even with more extensive training facilities and guidance a good deal of mobility would still persist among Canadians because of environmental influences, particularly the influence of prevailing value systems, that bear upon the individual's choices. It should not be overlooked that, in the context of skilled manpower supply, mobility may be a useful phenomenon in that it can provide a flexible means of acquiring trade skills. On the other hand, it may be wasteful of human resources if it is aimless in character. Put more positively, mobility, if it is to have real value in the development of skilled manpower, must be undergirded by basic education and training that is applicable in as many situations as possible.

The large majority of the non-Canadian workers in each trade had entered their first full-time employment either in the trade with which they were connected or in a related trade, whereas fewer than half the Canadians in each trade had done so. A particularly small proportion of Canadian sheet metal workers had gone directly into the trade, four fifths of them having had previous employment in a wholly unrelated trade.

Attitudes of Tradesmen Towards Their Trade

In order to get some insight into how the worker regards his own trade, each worker interviewed was presented with a list of eight occupations and asked to rank or compare his trade with the others on three factors, namely, "preference", "prestige", and "occupation for son". The eight occupations selected were the five trades covered by the survey and, in addition, the occupations of professional engineer, office clerk and punch press operator. It will be seen that the selected occupations included one at the semi-skilled level,

several at the skilled level, two at the highly skilled or technician level (electronic technician and draughtsman), one at the professional level, and one in the office area.

The analysis reveals that electronic technicians rated their occupation higher on all three counts than any of the other tradesmen. Draughtsmen also ranked their occupation highly. Floor moulders, in general, regarded their trade as the least attractive of the eight occupations. The tool and die makers and sheet metal workers were midway between these two extremes.

The electronic technicians, regardless of where they had been trained, viewed their occupation as second in preference, prestige and in occupation for son.

The senior draughtsmen ranked their occupation as second in preference, but only third in prestige and as a suitable occupation for son.

The floor moulders ranked their trade in last place as regards prestige and occupation for son. The only difference that existed between the Canadian and non-Canadian trained floor moulders was that the majority of the latter ranked their trade in sixth place or lower on the factor of preference compared with 28 per cent of the Canadians. This marked difference in preference poses an interesting question. What was the reason behind this attitude? One possible explanation might be that, to the immigrant, the trade of floor moulder, more than the other occupations surveyed, lacks the prestige it had in the country from which he emigrated, so that the trade in its Canadian setting has less appeal than it may have previously had for him.

The tool and die makers and sheet metal workers considered their trades as much less attractive than the occupations of professional engineer and electronic technician, but much more attractive than those of floor moulder and punch press operator.

Of the various occupations offered for selection, the career of professional engineer was by far the most widely and highly respected. All the trades, with but one partial exception, ranked professional engineer first on all three factors. In the floor moulding trade alone, the Canadian tradesmen deviated from this otherwise inflexible pattern by stating a first preference for their own trade, although at the same time conceding first place to professional engineer for the factors of prestige and occupation for son.

The occupation of electronic technician was the next most highly regarded, and frequently, but not invariably, ranked in second place for the three factors. The draughting occupation was also highly regarded and tended to rank in third place. The floor moulding trade, on the other hand, almost invariably received a very low ranking and was generally regarded, along with punch press operator, as an unattractive trade. Office work had a moderate amount of appeal for certain workers, but was usually assigned medium or very low ratings for all factors.

Reasons for Entering Trade

The survey indicates that more workers had entered their trades because of interest than for any other reason, and this was true of both Canadian and non-Canadian trained workers in four out of the five occupations covered. The floor moulding trade constituted an exception—while the non-Canadians had entered the trade mainly owing to interest, the primary motivation for Canadians was the influence of family relations, followed closely by interest.

It is interesting to note that, on the one hand, interest ranked high among Canadians as a reason for entering their trade and, on the other hand, as a group they were characterized by considerable mobility. On the face of it, there seems to be a discrepancy between interest and mobility, so far as the Canadian workers are concerned. One would expect that if interest were high, mobility would have been less pronounced. Lack of opportunity to find an outlet for one's interest may be one explanation of the apparent conflict. Another may be that workers, through a lack of guidance early enough in their lives, may discover their interests later than would otherwise be the case.

No second reason was shared in common by the tradesmen in the five occupations. Aptitude for the trade was ranked second by Canadian draughtsmen, but was rated third by electronic technicians and tool and die makers.

The two reasons most commonly ranked in second place were the absence of alternative employment and the influence of relatives. Very many sheet metal workers, for example, particularly Canadians, had entered their trade because no other employment was available, while a fairly high proportion of both Canadian and non-Canadian floor moulders had entered their occupation for the same reason. Only a few of the electronic technicians, on the other hand, had chosen their occupation by reason of economic pressure.

Family influence also was a strong secondary influence in the decision of many of the tradesmen to enter their occupation. In the tool and die making trade very many Canadian and non-Canadian tradesmen had, indeed, entered their occupation because of family considerations, while a lesser number of draughtsmen had also done so for similar reasons.

Hobbies as a reason for occupational choice was peculiar to the electronic technicians, no other group of tradesmen suggesting that their recreational interests had in any way contributed to their choice of occupation.

It may be noted lastly that relatively few tradesmen over the five trades had entered their occupations merely by reason of pay, although inevitably a proportion of the workers in most trades had been motivated by the pay factor. A higher proportion of floor moulders entered the occupation because of expected remuneration than in any other trade, and more Canadians than non-Canadians chose this trade for financial reasons.

What Tradesmen Considered the Most Useful Part of their Training

Although, as might be expected, some difference of views existed between the different trades, as well as between individual workers, in regard to that

part of their training which they had found most useful in the acquisition of their skills, the general consensus was in favour of practical on-the-job experience. Such experience had proved of great value to the majority of tradesmen in the five occupations. The importance of experience thus acquired was strongly emphasized by sheet metal workers and tool and die makers, and was particularly pronounced in the case of the latter.

The stress placed by workers on practical on-the-job experience underscores the important role of such experience in the acquiring of skills. This has been the rationale of apprenticeship training through the years. The value placed by tradesmen upon practical experience is significant not only for training within industry itself but also for the practical work provided by technical-vocational school courses and suggests that a greater emphasis, both qualitative and quantitative, might usefully be placed on this aspect of training. This is not to gainsay the value of theory. Both are essential to a rounded training program. The survey does suggest, however, that the value of practical training should be fully recognized.

Doing a variety of jobs and working under the supervision of competent tradesmen were frequently mentioned as the most useful types of on-the-job experience by floor moulders, sheet metal workers, and tool and die makers. Senior draughtsmen had also found that working in a machine shop or tool room had proved valuable in learning the draughting trade.

Although agreement existed between the trades, to a greater or lesser degree, on the value of practical on-the-job experience, many workers had also found trade-related courses to be of value in learning their trade. In the case of electronic technicians, a combination of formal course work and on-the-job experience had been found most useful. The value of these two methods of training when employed in conjunction was a marked feature of this occupation. Senior draughtsmen stressed the importance of pre- and post-employment courses.

The subjects of study found most useful by the tradesmen in general included mathematics and science (particularly physics). Specialized subjects were also mentioned as being of value, depending on the trade, such as draughting, layout work, and electronic theory.

The apprenticeship form of training, on the whole, was considered of more advantage by the non-Canadian trained workers in the five trades who had undergone this type of training than by the Canadians with similar training, while the benefits of an education received at a technical secondary school and institute of technology were, in general, emphasized by workers who had themselves attended such institutions.

Education and Training Recommended by Tradesmen

The extent of school education considered desirable varied from trade to trade. The electronic technicians and senior draughtsmen, who, in general, had more education than the tradesmen in other occupations, attached greater

importance to schooling than the workers in other trades. Secondary school education was stressed by the electronic technicians and draughtsmen, with the recommendation that as much secondary schooling as possible should be obtained. About one half of the workers in these two trades advised graduation from a secondary school. The sheet metal workers and tool and die makers, on the other hand, while they also echoed the value of secondary education, did not urge the need so strongly. The floor moulders alone regarded primary school education as sufficient for the requirements of their trade.

Although opinions varied as to the type of secondary school education that should be pursued, most of the workers in the five-trades were of an open mind as to the relative advantages of academic secondary education as against those of technical secondary education. The sheet metal workers and draughtsmen regarded the two types of education as of equal value, while the electronic technicians, on the other hand, clearly expressed themselves in favour of general secondary school education.

The subjects of the secondary school which were especially recommended by the tradesmen in general were mathematics (including trigonometry), science (including physics), and draughting. While a large measure of uniformity existed among the separate trades as to the value of these subjects, a varying degree of emphasis was, of course, placed on individual subjects by the tradesmen according to the special requirements of their own particular trade.

The advantages of the apprenticeship system of training were mainly urged by the floor moulders and tool and die makers, these being the only two occupations in which a substantial number of workers emphasized the value of this form of training. Other groups of workers also stressed the advantages of apprenticeship training, but in lesser degree. About half of the non-Canadian trained draughtsmen who had served an apprenticeship considered this type of training to possess more advantages than any other.

All the tradesmen agreed that on-the-job experience was a most important and practical way of acquiring their various occupational skills, although the combination of practical experience and trade-related course work was regarded, in general, as the ideal method. The insistence of tool and die makers on the value of practical experience was a marked feature of the trade.

Types of experience that were suggested as likely to prove helpful included doing a variety of jobs and learning the work of several departments. The importance of supervised training was greatly stressed by all the trades, it being regarded as almost essential that the trainee should work under the guidance of qualified and competent tradesmen.

Part 2—PATTERNS OF EDUCATION AND TRAINING IN FIVE TRADES

Tool and Die Makers

OCCUPATIONAL DESCRIPTION

The major duties of the tool and die maker as defined for purposes of this study, are as follows:

Makes, repairs and maintains machine-shop tools, jigs, fixtures, and also dies used for forging, punching, stamping, and other metal-forming work. Working from blueprints, lays out the work, using precision measuring and marking instruments. Sets up and operates various machines found in a machine shop. Working to close tolerances, fits and assembles parts as necessary. May design dies, tools, jigs and fixtures.

SAMPLE COVERAGE

The following table indicates the coverage for tool and die tradesmen, showing the industries, the number of establishments covered in each industry, and the number of workers interviewed.

Table A—Coverage of Sample of Tool and Die Makers (including supervisors)

Industry	Number of Establishments			Number of Tool and Die Makers		
	Toronto	Montreal	Total	Toronto	Montreal	Total
Agricultural implements.....	1	0	1	13	0	13
Boilers and plate work.....	1	0	1	1	0	1
Heating and cooking apparatus...	3	1	4	7	2	9
Special industrial machinery.....	1	1	2	2	5	7
Sheet metal products.....	3	1	4	5	1	6
Aircraft and parts.....	2	4	6	47	26	73
Motor vehicles.....	1	2	3	2	4	6
Motors vehicle parts and accessories.....	1	0	1	4	0	4
Railroad and rolling stock equipment.....	0	1	1	0	4	4
Heavy electrical machinery and equipment.....	3	1	4	8	4	12
Radio, television and other electronic equipment.....	3	1	4	8	3	11
Refrigerators, vacuum cleaners, and appliances.....	1	1	2	6	2	8
Miscellaneous electrical products..	0	1	1	0	7	7
Electric light and power.....	1	0	1	2	0	2
14 industries.....	21	14	35	105	58	163

Table B—Pattern of Education and Training for Canadian-Trained Tool and Die Makers¹

Pattern of Education and Training	Number of Tool and Die Makers
INFORMALLY TRAINED TOOL AND DIE MAKERS.....	11
Primary school.....	5
General secondary school.....	6
FORMALLY TRAINED TOOL AND DIE MAKERS.....	83
1. <i>Without Organized In-Plant Trade Training</i>	
Primary school + part-time courses.....	4
General secondary school + part-time courses.....	7
Other secondary school + part-time courses.....	3
Technical secondary school.....	6
Technical secondary school + part-time courses.....	4
Other patterns (six).....	6
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + primary school.....	5
Apprenticeship + primary school + part-time courses.....	3
Apprenticeship + general secondary school.....	8
Apprenticeship + general secondary school + part-time courses..	7
Apprenticeship + technical secondary school.....	7
Apprenticeship + technical secondary school + part-time courses.	6
Apprenticeship + other secondary school.....	3
Other patterns (eleven) ²	14
Total number of Canadian-trained tool and die makers.....	94

¹ Excluding supervisors.

² Includes miscellaneous patterns for tradesmen with apprenticeship and non-apprenticeship backgrounds.

Table C—Pattern of Education and Training for Foreign-Trained Tool and Die Makers¹

Pattern of Education and Training	Number of Tool and Die Makers
INFORMALLY TRAINED TOOL AND DIE MAKERS.....	5
General secondary school.....	5
FORMALLY TRAINED TOOL AND DIE MAKERS.....	51
1. <i>Without Organized In-Plant Trade Training</i>	
Secondary school ²	4
Other patterns (three).....	4
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + primary school.....	9
Apprenticeship + secondary school.....	26
Apprenticeship + secondary school + part-time courses.....	6
Apprenticeship—other patterns (two).....	2
Total number of foreign-trained tool and die makers.....	56

¹ Excluding supervisors.

² Trade-related courses.

Table D—Specific Type of Education and Training for
Canadian- and Foreign-Trained Tool and Die Makers¹

Type of Education and Training Received	Canadian-Trained Tradesmen			Foreign-Trained Tradesmen		
	Comp.	Incomp.	Total	Comp.	Incomp.	Total
Total Number of Tradesmen Covered.....	—	—	94 ²	—	—	56 ²
<i>Full-Time Training or Education</i>						
Primary school.....	93	1	94	56	0	56
Secondary school.....	17	60	77	24	24	48 ³
(1) General.....	7	27	34	—	—	—
(2) Technical.....	9	25	34	—	—	—
(3) Other.....	1	8	9	—	—	—
Institute of technology.....	0	1	1	2	1	3
University.....	0	2	2	0	1	1
Organized in-plant trade train- ing.....	49	4	53	42	1	43
(1) Apprenticeship with class- room instruction.....	19	1	20	33	1	34
(2) Apprenticeship without classroom instruction.....	26	2	28	9	0	9
(3) Non-Apprenticeship with classroom instruction.....	1	1	2	0	0	0
(4) Non-Apprenticeship without classroom instruction.....	3	0	3	0	0	0
Armed services.....	6	0	6	1	0	1
Trades and industrial institute..	1	0	1	0	0	0
Special short course.....	0	0	0	0	0	0
Part-Time Trade Related Courses.....	—	—	46	—	—	7

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

³ Due to the variety of educational systems, no classification of secondary schools by specific type was possible.

**Table E—Specific Type of Education and Training for
Canadian-Trained Tool and Die Makers by Type of Training and Education,
and by Period in which Major Part of Training was Received¹**

Type of Education and Training Received	Period in which Major Part of Training Received			
	Before 1930	1930-1939	1940-1945	After 1945
	Total	Total	Total	Total
Total Number of Tradesmen Covered....	12 ²	23 ²	28 ²	31 ²
<i>Full-Time Training or Education</i>				
Primary school.....	12	23	28	31
Secondary school.....	8	17	25	27
(1) General.....	5	9	9	11
(2) Technical.....	1	8	12	13
(3) Other.....	2	0	4	3
Institute of technology.....	0	0	1	0
University.....	0	1	0	1
Organized in-plant trade training.....	11	12	14	16
(1) Apprenticeship with class-room in- struction.....	5	5	2	8
(2) Apprenticeship without classroom in- struction.....	6	7	7	8
(3) Non-Apprenticeship with classroom instruction.....	0	0	2	0
(4) Non-Apprenticeship without classroom instruction.....	0	0	3	0
Armed services.....	0	3	2	1
Trades and industrial institute.....	0	0	1	0
Special short course.....	0	0	0	0
Part-Time Trade Related Courses.....	6	6	17	17

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

Table F—Estimated Amount of Formal Training Received by
Canadian- and Foreign-Trained Tool and Die Makers¹

Estimated Amount of Formal Training Received ²	Canadian-Trained	Foreign-Trained
	Number	Number
Less than one year.....	10	0
1 year to 1.9 years.....	10	1
2 years to 3.9 years.....	14	7
4 or more years.....	49	42
Sub-total.....	83	50
Training time not stated.....	0	1
Total number of formally trained tool and die makers.....	83	51
Total number of informally trained tool and die makers.....	11	5
Total number of tool and die makers.....	94	56

¹ Excluding supervisors.

² Includes all types of formal trade-related training, both pre-employment and post-employment.

Table G—Pre-Employment Education¹ of Tool and Die Makers,² Formally and Informally Trained in Canada

Education	Formally Trained Tool and Die Makers				Informally Trained Tool and Die Makers			
	Com- pleted	Incom- pleted	Total		Com- pleted	Incom- pleted	Total	
			Number	Per Cent			Number	Per Cent
Primary school only.....	17	0	17	20	6	1	7	64
Primary and secondary school.....	24	42	66	80	2	2	4	36
Total number of tool and die makers.....	41	42	83	100	8	3	11	100

¹ Includes only pre-employment primary and secondary school education.

² Excluding supervisors.

Table H—How Canadian-Trained Tool and Die Makers¹ Ranked Their Trade

Occupations Being Ranked

—	Tool & Die Maker	Prof. Eng.	Elect. Tech.	Draughts man	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
IN TERMS OF "PREFERENCE"									
Rank 1.....	15	59	9	1	0	0	0	0	84
2.....	32	15	25	12	0	0	0	0	84
3.....	25	4	21	25	2	4	1	2	84
4.....	11	2	22	30	0	17	2	0	84
5.....	1	1	3	10	13	40	6	10	84
6.....	0	1	2	2	30	16	18	15	84
7.....	0	0	1	0	21	7	38	17	84
8.....	0	2	1	4	18	0	19	40	84
Total.....	84	84	84	84	84	84	84	84	
Not Stated.....	10	10	10	10	10	10	10	10	
Total Sample....	94	94	94	94	94	94	94	94	

IN TERMS OF "PRESTIGE"

Rank 1.....	1	74	5	0	0	0	0	0	80
2.....	15	4	47	9	0	1	1	3	80
3.....	23	0	17	32	3	0	1	4	80
4.....	25	0	5	29	0	7	3	11	80
5.....	12	0	3	4	10	30	3	18	80
6.....	3	0	1	0	27	24	13	12	80
7.....	1	0	2	2	22	16	28	9	80
8.....	0	2	0	4	18	2	31	23	80
Total.....	80	80	80	80	80	80	80	80	
Not Stated.....	14	14	14	14	14	14	14	14	
Total Sample....	94	94	94	94	94	94	94	94	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	1	71	7	0	0	0	0	0	79
2.....	8	7	50	14	0	0	0	0	79
3.....	37	1	13	25	1	0	0	2	79
4.....	30	0	8	27	0	10	0	4	79
5.....	3	0	1	8	15	39	2	11	79
6.....	0	0	0	2	21	20	15	21	79
7.....	0	0	0	0	20	9	39	11	79
8.....	0	0	0	3	22	1	23	30	79
Total.....	79	79	79	79	79	79	79	79	
Not Stated.....	15	15	15	15	15	15	15	15	
Total Sample....	94	94	94	94	94	94	94	94	

¹ Excluding supervisors.

Table I—How Foreign-Trained Tool and Die Makers¹ Ranked Their Trade

Occupations Being Ranked

	Tool & Die Maker	Prof. Eng.	Elect. Tech.	Draughts man	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
IN TERMS OF "PREFERENCE"									
Rank 1.....	12	31	5	3	0	0	0	0	51
2.....	14	2	22	10	0	2	0	1	51
3.....	12	9	11	14	1	1	3	0	51
4.....	10	5	8	17	1	5	2	3	51
5.....	3	3	5	2	5	22	6	5	51
6.....	0	0	0	1	12	16	16	6	51
7.....	0	1	0	1	18	5	16	10	51
8.....	0	0	0	3	14	0	8	26	51
Total.....	51	51	51	51	51	51	51	51	
Not Stated.....	5	5	5	5	5	5	5	5	
Total Sample....	56	56	56	56	56	56	56	56	

IN TERMS OF "PRESTIGE"

Rank 1.....	1	36	8	3	0	0	0	1	49
2.....	5	8	23	9	0	0	0	4	49
3.....	13	3	11	20	0	1	0	1	49
4.....	19	2	5	12	0	2	1	8	49
5.....	10	0	1	3	7	15	2	11	49
6.....	1	0	0	0	18	17	5	8	49
7.....	0	0	1	0	13	6	26	3	49
8.....	0	0	0	2	11	8	15	13	49
Total.....	49	49	49	49	49	49	49	49	
Not Stated.....	7	7	7	7	7	7	7	7	
Total Sample....	56	56	56	56	56	56	56	56	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	1	35	11	1	0	0	0	0	48
2.....	5	9	28	6	0	0	0	0	48
3.....	22	2	6	15	0	0	0	3	48
5.....	15	1	2	19	1	5	1	4	48
5.....	4	1	0	2	12	19	3	7	48
6.....	1	0	1	2	15	15	6	8	48
7.....	0	0	0	1	14	5	24	4	48
8.....	0	0	0	2	6	4	14	22	48
Total.....	48	48	48	48	48	48	48	48	48
Not Stated.....	8	8	8	8	8	8	8	8	8
Total Sample....	56	56	56	56	56	56	56	56	56

¹ Excluding supervisors.

Table J—Entry Trade of Canadian and Foreign-Trained Tool and Die Makers¹

First Full-Time Job	Canadian-Trained Tool and Die Makers	Foreign-Trained Tool and Die Makers
	Number	Number
Present Trade.....	38	30
Related Trade.....	6	12
Unrelated Trade.....	49	15
Total.....	93	57

¹ Excluding supervisors.Table K—Reasons Given by Tool and Die Makers for Entering Their Trade¹

Reasons	Canadian-Trained	Foreign-Trained
	Number of Responses	Number of Responses
Interest.....	60	32
Relations.....	32	18
Aptitude.....	23	9
Pay.....	7	7
Job availability.....	4	8
Hobbies.....	1	0
Armed service training.....	0	0
Working conditions.....	0	0
Other reasons.....	4	3
Total number of responses.....	131	77

¹ Excluding supervisors.

Sheet Metal Tradesmen

OCCUPATIONAL DESCRIPTION

The major duties of the sheet metal tradesman, as defined for purposes of this study, are as follows:

Fabricates and assembles sheet metal parts and equipment; cuts, shapes, and prepares parts for assembly, using hand or machine tools; bolts, rivets, solders, or welds parts together; finishes seams, joints, and rough surfaces with grinding wheel or file.

SAMPLE COVERAGE

The sheet metal tradesmen covered in this study were all employed in manufacturing establishments. No interviews were conducted with any tradesmen working in the construction industry.

The following table shows the coverage for sheet metal tradesmen, showing the industries, the number of establishments covered in each industry, and the number of workers interviewed.

Table A—Coverage of Sample of Sheet Metal Tradesmen (including Supervisors)

Industry	Number of Establishments			Number of Sheet Metal Tradesmen		
	Toronto	Montreal	Total	Toronto	Montreal	Total
Boilers and plate work.....	1	—	1	4	—	4
Heating and cooking apparatus..	2	1	3	12	3	15
Iron castings.....	1	—	1	1	—	1
Special industrial machinery.....	2	1	3	6	2	8
Sheet metal products.....	6	3	9	27	14	41
Aircraft and parts.....	2	3	5	30	18	48
Motor vehicles.....	1	1	2	1	3	4
Railroad and rolling stock equipment.....	—	1	1	—	2	2
Shipbuilding and repairing.....	—	2	2	—	4	4
Brass and copper products.....	—	1	1	—	5	5
Heavy electrical machinery and equipment.....	3	—	3	7	—	7
Radio, television and other electronic equipment.....	4	3	7	5	6	11
Refrigerators, vacuum cleaners and appliances.....	1	—	1	1	—	1
13 industries.....	23	16	39	94	57	151

Table B—Pattern of Education and Training for Canadian-Trained Sheet Metal Tradesmen¹

Pattern of Education and Training	Number of Sheet Metal Tradesmen
INFORMALLY TRAINED SHEET METAL TRADESMEN...	44
Primary school.....	25
General secondary school.....	17
Other patterns (two).....	2
FORMALLY TRAINED SHEET METAL TRADESMEN.....	57
1. <i>Without Organized In-Plant Trade Training</i>	
Primary school + part-time courses.....	8
Primary school + trades and industrial institute.....	3
General secondary school + part-time courses.....	8
Technical secondary school.....	6
Technical secondary school + part-time courses.....	6
Other patterns (six).....	8
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + primary school.....	3
Other patterns (eight) ²	15
Total number of Canadian-trained sheet metal tradesmen.....	101

¹ Excluding supervisors.

² Includes miscellaneous patterns for tradesmen with apprenticeship and non-apprenticeship backgrounds.

Table C—Pattern of Education and Training for Foreign-Trained Sheet Metal Tradesmen¹

Pattern of Education and Training	Number of Sheet Metal Tradesmen
INFORMALLY TRAINED SHEET METAL TRADESMEN ² ...	3
FORMALLY TRAINED SHEET METAL TRADESMEN.....	26
1. <i>Without Organized In-Plant Trade Training</i> ²	1
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + primary school.....	6
Apprenticeship + secondary school.....	11
Apprenticeship—other patterns (six).....	8
Total number of foreign-trained sheet metal tradesmen.....	29

¹ Excluding supervisors.

² Because of the small number involved, no specific patterns are shown.

Table D—Specific Type of Education and Training for Canadian- and Foreign-Trained Sheet Metal Tradesmen¹

Type of Education and Training Received	Canadian-Trained Tradesmen			Foreign-Trained Tradesmen		
	Comp.	Incomp.	Total	Comp.	Incomp.	Total
Total Number of Tradesmen Covered.....	—	—	101 ²	—	—	29 ²
<i>Full-Time Training or Education</i>						
Primary school.....	95	6	101	29	0	29
Secondary school.....	16	43	59	5	14	19 ³
(1) General.....	9	27	36	—	—	—
(2) Technical.....	5	10	15	—	—	—
(3) Other.....	2	6	8	—	—	—
Institute of technology.....	0	0	0	1	0	1
University.....	0	0	0	0	1	1
Organized in-plant trade training.....	18	0	18	24	1	25
(1) Apprenticeship with classroom instruction.....	6	0	6	21	1	22
(2) Apprenticeship without classroom instruction.....	6	0	6	3	0	3
(3) Non-Apprenticeship with classroom instruction.....	2	0	2	2	0	2
(4) Non-Apprenticeship without classroom instruction.....	4	0	4	0	0	0
Armed services.....	3	0	3	4	0	4
Trades and industrial institute.....	4	0	4	0	0	0
Special short course.....	2	0	2	0	0	0
Part-Time Trade Related Courses	—	—	38	—	—	6

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

³ Due to the variety of educational systems, no classification of secondary schools by specific type was possible.

Table E—Specific Type of Education and Training for Canadian-Trained Sheet Metal Tradesmen by Type of Training and Education, and by Period in Which Major Part of Training was Received¹

Type of Education and Training Received	Period in which Major Part of Training Received			
	Before 1930	1930-1939	1940-1945	After 1945
Total Number of Tradesmen Covered...	7 ²	12 ²	19 ²	63 ²
<i>Full-Time Training or Education</i>				
Primary school.....	7	12	19	63
Secondary school.....	2	6	10	41
(1) General.....	2	4	9	21
(2) Technical.....	0	2	0	13
(3) Other.....	0	0	1	7
Institute of technology.....	0	0	0	0
University.....	0	0	0	0
Organized in-plant trade training.....	2	3	4	9
(1) Apprenticeship with classroom instruction.....	0	0	1	5
(2) Apprenticeship without classroom instruction.....	2	1	2	1
(3) Non-Apprenticeship with classroom instruction.....	0	1	1	0
(4) Non-Apprenticeship without classroom instruction.....	0	1	0	3
Armed services.....	1	1	0	1
Trades and industrial institute.....	1	1	2	0
Special short courses.....	0	0	1	1
Part-Time Trade Related Courses.....	0	6	6	26

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

Table F—Estimated Amount of Formal Training Received by Canadian- and Foreign-Trained Sheet Metal Tradesmen¹

Estimated Amount of Formal Training Received ²	Canadian-Trained	Foreign-Trained
	Number	Number
Less than 1 year.....	28	0
1 year to 1.9 years.....	1	0
2 years to 3.9 years.....	9	5
4 years or more.....	15	21
Sub-total.....	53	26
Training time not stated.....	4	0
Total number of formally trained sheet metal tradesmen.....	57	26
Total number of informally trained sheet metal tradesmen.....	44	3
Total number of sheet metal tradesmen.....	101	29

¹ Excluding supervisors.

² Includes all types of formal training, both pre-employment and post-employment.

Table G—Pre-Employment Education¹ of Sheet Metal Tradesmen², Formally and Informally Trained in Canada

Education	Formally Trained Sheet Metal Tradesmen				Informally Trained Sheet Metal Tradesmen			
	Completed	Incomplete	Total		Completed	Incomplete	Total	
			Number	Per Cent Attended			Number	Per Cent Attended
Primary school only.....	16	2	18	32	23	4	27	60
Primary and secondary school..	10	28	38	68	4	14	18	40
Total number of sheet metal tradesmen.....	26	30	56	100	27	18	45	100

¹ Includes only pre-employment primary and secondary school education.

² Excluding supervisors.

Table H—How Canadian-Trained Sheet Metal Workers¹ Ranked Their Trade

Occupations Being Ranked

	Sheet Metal Worker	Prof. Eng.	Tool and Die Maker	Elect. Tech.	Draughts- man	Floor Moulder	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	12	49	4	21	4	0	0	0	90
2.....	7	17	15	30	18	0	2	1	90
3.....	21	7	22	17	22	1	0	0	90
4.....	19	8	27	8	24	2	0	2	90
5.....	26	6	18	9	13	8	6	4	90
6.....	5	2	2	2	4	25	30	20	90
7.....	0	0	1	2	4	28	32	23	90
8.....	0	1	1	1	1	26	20	40	90
Total.....	90	90	90	90	90	90	90	90	
Not Stated.....	11	11	11	11	11	11	11	11	
Total Sample....	101	101	101	101	101	101	101	101	

IN TERMS OF "PRESTIGE"

Rank 1.....	1	64	1	13	3	0	0	2	84
2.....	2	12	8	45	12	0	0	5	84
3.....	6	4	19	16	29	1	1	8	84
4.....	11	1	33	5	21	4	1	8	84
5.....	35	0	19	2	14	5	4	5	84
6.....	22	2	3	1	4	20	16	16	84
7.....	7	0	1	1	1	33	27	14	84
8.....	0	1	0	1	0	21	35	26	84
Total.....	84	84	84	84	84	84	84	84	
Not Stated.....	17	17	17	17	17	17	17	17	
Total Sample....	101	101	101	101	101	101	101	101	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	1	55	1	26	4	0	0	0	87
2.....	4	17	12	37	16	0	0	1	87
3.....	7	12	19	16	31	0	0	2	87
4.....	17	1	39	4	20	0	0	6	87
5.....	39	1	14	3	14	6	0	10	87
6.....	16	1	2	0	1	25	24	18	87
7.....	3	0	0	0	1	33	31	19	87
8.....	0	0	0	1	0	23	32	31	87
Total.....	87	87	87	87	87	87	87	87	
Not Stated.....	14	14	14	14	14	14	14	14	
Total Sample....	101	101	101	101	101	101	101	101	

¹ Excluding supervisors.

Table I—How Foreign-Trained Sheet Metal Workers¹ Ranked Their Trade

Occupations Being Ranked

	Sheet Metal Worker	Prof. Eng.	Tool and Die Maker	Elect. Tech.	Draughts- man	Floor Moulder	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	4	16	0	2	5	0	0	0	27
2.....	5	3	7	3	9	0	0	0	27
3.....	6	3	8	4	6	0	0	0	27
4.....	8	5	6	4	3	1	0	0	27
5.....	4	0	6	12	3	1	0	1	27
6.....	0	0	0	0	0	10	10	7	27
7.....	0	0	0	0	0	9	12	6	27
8.....	0	0	0	2	1	6	5	13	27
Total.....	27	27	27	27	27	27	27	27	
Not Stated.....	2	2	2	2	2	2	2	2	
Total Sample....	29	29	29	29	29	29	29	29	

IN TERMS OF "PRESTIGE"

Rank 1.....	0	21	0	5	0	0	0	0	26
2.....	0	3	4	10	7	0	0	2	26
3.....	0	1	10	5	8	0	0	2	26
4.....	2	1	8	5	7	1	0	2	26
5.....	15	0	3	1	1	3	0	3	26
6.....	7	0	1	0	2	4	4	8	26
7.....	2	0	0	0	0	9	10	5	26
8.....	0	0	0	0	1	9	12	4	26
Total.....	26	26	26	26	26	26	26	26	
Not Stated.....	3	3	3	3	3	3	3	3	
Total Sample....	29	29	29	29	29	29	29	29	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	0	19	1	5	1	0	0	0	26
2.....	1	5	1	15	3	0	0	1	26
3.....	2	1	7	4	11	1	0	0	26
4.....	5	0	13	2	5	0	0	1	26
5.....	12	1	4	0	4	1	1	3	26
6.....	5	0	0	0	0	7	6	8	26
7.....	0	0	0	0	1	8	10	7	26
8.....	1	0	0	0	1	9	9	6	26
Total.....	26	26	26	26	26	26	26	26	
Not Stated.....	3	3	3	3	3	3	3	3	
Total Sample....	29	29	29	29	29	29	29	29	

¹ Excluding supervisors.

**Table J—Entry Trade of Canadian- and Foreign-Trained
Sheet Metal Tradesmen¹**

First Full-Time Job	Canadian-Trained Sheet Metal Tradesmen	Foreign-Trained Sheet Metal Tradesmen
	Number	Number
Present trade.....	20	24
Related trade.....	0	1
Unrelated trade.....	80	4
Sub-total.....	100	29
Not stated.....	1	0
Total.....	101	29

¹ Excluding supervisors.

Table K—Reasons Given by Sheet Metal Tradesmen for Entering Their Trade¹

Reasons	Canadian-Trained	Foreign-Trained
	Number of Responses	Number of Responses
Interest.....	41	17
Job availability.....	35	4
Relations.....	13	7
Pay.....	9	4
Aptitude.....	6	2
Hobbies.....	1	0
Working conditions.....	0	0
Armed service training.....	0	2
Other reasons.....	9	2
Total number of responses.....	114	38

¹ Excluding supervisors.

Floor Moulders

OCCUPATIONAL DESCRIPTION

The major duties of the floor moulder as defined for purposes of this study, are as follows:

Makes moulds for large castings on foundry floor by packing and ramming sand or loam around patterns which have been placed in flasks. Uses riddle, shovel, rammer, trowel, stick, lifter, bellows, and mallet in handling, compacting, and smoothing sand. Cuts runners and vents in mould. Repairs and finishes mould surface. Sets cores in core print grooves or anchors them with chaplets. Directs Crane Operator in lifting, turning over, and shifting heavy flasks, moulds, and patterns. May make symmetrical moulds or sections of moulds by the sweep method. May pour metal into mould.

SAMPLE COVERAGE

The following table shows the coverage for floor moulders, showing the industries, the number of establishments covered in each industry, and the number of workers interviewed.

Table A—Coverage of Sample of Floor Moulders (including supervisors)

Industry	Number of Establishments			Number of Floor Moulders		
	Toronto	Montreal	Total	Toronto	Montreal	Total
Boilers and plate work.....	1	1	2	7	3	10
Heating and cooking apparatus...	0	2	2	0	8	8
Iron castings.....	5	2	7	40	16	56
Special industrial machinery.....	0	2	2	0	29	29
Aircraft and parts.....	1	0	1	2	0	2
Brass and copper products.....	0	1	1	0	2	2
Heavy electrical machinery and equipment.....	1	0	1	5	0	5
7 industries.....	8	8	16	54	58	112

Table B—Pattern of Education and Training for Canadian-Trained Floor Moulders¹

Pattern of Education and Training	Number of Floor Moulders
INFORMALLY TRAINED FLOOR MOULDERS.....	25
Primary school.....	17
General secondary school.....	7
Other patterns (one).....	1
FORMALLY TRAINED FLOOR MOULDERS.....	46
1. <i>Without Organized In-plant Trade Training</i>	
Miscellaneous patterns (three).....	3
2. <i>With Organized In-plant Trade Training</i>	
Apprenticeship + primary school.....	26
Apprenticeship + general secondary school.....	7
Apprenticeship + general secondary school + part-time courses.....	4
Other patterns (five) ²	6
Total number of Canadian-trained floor moulders.....	71

¹ Excluding supervisors.

² Includes miscellaneous patterns for tradesmen with apprenticeship and non-apprenticeship backgrounds.

Table C—Pattern of Education and Training for Foreign-Trained Floor Moulders¹

Pattern of Education and Training	Number of Floor Moulders
INFORMALLY TRAINED FLOOR MOULDERS ²	2
FORMALLY TRAINED FLOOR MOULDERS.....	25
<i>With Organized In-plant Trade Training</i>	
Apprenticeship + primary school + part time courses.....	3
Apprenticeship + secondary school.....	15
Apprenticeship + secondary school + part-time courses.....	6
Apprenticeship—Other patterns (one).....	1
Total number of foreign-trained floor moulders.....	27

¹ Excluding supervisors.

² Because of the small number involved, no specific patterns are shown.

Table D—Specific Type of Education and Training for Canadian- and Foreign-Trained Floor Moulders¹

Type of Education and Training Received	Canadian-Trained Tradesmen			Foreign-Trained Tradesmen		
	Comp.	Incomp.	Total	Comp.	Incomp.	Total
Total Number of Tradesmen Covered.....	—	—	71 ²	—	—	27 ²
<i>Full-Time Training or Education</i>						
Primary school.....	58	13	71	27	0	27
Secondary school.....	9	16	25	1	20	21 ³
(1) General.....	7	13	20	—	—	—
(2) Technical.....	1	2	3	—	—	—
(3) Other.....	1	1	2	—	—	—
Institute of technology.....	1	0	1	0	0	0
University.....	0	1	1	0	0	0
Organized in-plant trade training.....	42	1	43	24	1	25
(1) Apprenticeship with classroom instruction.....	8	0	8	8	0	8
(2) Apprenticeship without classroom instruction.....	33	1	34	16	1	17
(3) Non-Apprenticeship with classroom instruction.....	1	0	1	0	0	0
(4) Non-Apprenticeship without classroom instruction...	0	0	0	0	0	0
Armed services.....	0	0	0	0	0	0
Trades and industrial institute..	0	0	0	0	0	0
Special short course.....	1	0	1	0	0	0
Part-Time Trade Related Courses.....	—	—	7	—	—	8

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

³ Due to the variety of educational systems, no classification of secondary school by specific type was possible.

Table E—Specific Type of Education and Training for Canadian-Trained Floor Moulders by Type of Training and Education, and by Period in which Major Part of Training Was Received¹

Type of Education and Training Received	Period in which Major Part of Training Received			
	Before 1930	1930-1939	1940-1945	After 1945
Total Number of Tradesmen Covered..	24 ²	12 ²	15 ²	20 ²
<i>Full-Time Training or Education</i>				
Primary school.....	24	12	15	20
Secondary school.....	4	6	4	11
(1) General.....	4	5	3	8
(2) Technical.....	0	1	1	1
(3) Other.....	0	0	0	2
Institute of technology.....	0	0	0	1
University.....	0	1	0	0
Organized in-plant trade training.....	18	6	8	11
(1) Apprenticeship with classroom instruction.....	2	0	1	5
(2) Apprenticeship without classroom instruction.....	15	6	7	6
(3) Non-Apprenticeship with classroom instruction.....	1	0	0	0
(4) Non-Apprenticeship without classroom instruction.....	0	0	0	0
Armed services.....	0	0	0	0
Trades and industrial institute.....	0	0	0	0
Special short course.....	0	0	0	1
Part-Time Trade Related Courses.....	2	0	1	4

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

Table F—Estimated Amount of Formal Training Received by Canadian- and Foreign-Trained Floor Moulders¹

Estimated Amount of Formal Training Received ²	Canadian-Trained	Foreign-Trained
	Number	Number
Less than one year.....	1	0
1 year to 1.9 years.....	0	0
2 years to 3.9 years.....	11	3
4 or more years.....	34	22
Total number of formally trained floor moulders.....	46	25
Total number of informally trained floor moulders.....	25	2
Total number of floor moulders.....	71	27

¹ Excluding supervisors.

² Includes all types of formal training, both pre-employment and post-employment.

Table G—Pre-Employment Education¹ of Floor Moulders², Formally and Informally Trained in Canada

Education	Formally Trained Floor Moulders				Informally Trained Floor Moulders			
	Completed	Incomplete	Total		Completed	Incomplete	Total	
			Number	Per Cent Attended			Number	Per Cent Attended
Primary school only.....	19	10	29	63	14	3	17	68
Primary and secondary school...	7	10	17	37	2	6	8	32
Total number of floor moulders.	26	20	46	100	16	9	25	100

Includes only pre-employment primary and secondary school education.

2 Excluding supervisors.

Table H—How Canadian-Trained Floor Moulders¹ Ranked Their Trade

Occupations Being Ranked

	Floor Moulder	Prof. Eng.	Tool and Die Maker	Elect. Tech.	Draughts- man	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	16	15	7	12	7	2	0	2	61
2.....	6	13	10	16	7	8	0	1	61
3.....	3	6	7	15	19	6	5	0	61
4.....	8	10	18	9	1	2	12	1	61
5.....	11	4	11	5	9	14	3	4	61
6.....	4	3	7	2	7	15	16	7	61
7.....	2	7	1	2	8	12	17	12	61
8.....	11	3	0	0	3	2	8	34	61
Total.....	61	61	61	61	61	61	61	61	
Not Stated.....	10	10	10	10	10	10	10	10	
Total Sample....	71	71	71	71	71	71	71	71	

IN TERMS OF "PRESTIGE"

Rank 1.....	0	36	1	11	5	2	0	6	61
2.....	1	7	7	30	12	0	0	4	61
3.....	0	12	10	9	23	1	1	5	61
4.....	5	0	23	4	13	6	2	8	61
5.....	9	5	9	1	4	16	11	6	61
6.....	7	0	8	2	0	22	17	5	61
7.....	12	1	2	2	1	10	23	10	61
8.....	27	0	1	2	3	4	7	17	61
Total.....	61	61	61	61	61	61	61	61	
Not Stated.....	10	10	10	10	10	10	10	10	
Total Sample....	71	71	71	71	71	71	71	71	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	1	39	1	17	2	0	0	1	61
2.....	1	11	9	20	12	4	1	3	61
3.....	4	5	10	11	23	4	0	4	61
4.....	4	3	23	7	13	3	1	7	61
5.....	7	1	10	2	6	16	9	10	61
6.....	5	0	7	3	0	16	16	14	61
7.....	9	1	1	1	1	16	23	9	61
8.....	30	1	0	0	4	2	11	13	61
Total.....	61	61	61	61	61	61	61	61	
Not Stated.....	10	10	10	10	10	10	10	10	
Total Sample....	71	71	71	71	71	71	71	71	

¹ Excluding supervisors.

Table I—How Foreign-Trained Floor Moulders¹ Ranked Their Trade

Occupations Being Ranked

	Floor Moulder	Prof. Eng.	Tool and Die Maker	Elect. Tech.	Draughts- man	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	4	9	2	0	3	0	0	1	19
2.....	0	4	2	8	4	0	0	1	19
3.....	2	2	2	6	7	0	0	0	19
4.....	1	3	9	1	4	0	1	0	19
5.....	2	0	3	4	0	6	2	2	19
6.....	4	1	1	0	0	6	4	3	19
7.....	3	0	0	0	0	6	6	4	19
8.....	3	0	0	0	1	1	6	8	19
Total.....	19	19	19	19	19	19	19	19	
Not Stated.....	8	8	8	8	8	8	8	8	
Total Sample....	27	27	27	27	27	27	27	27	

IN TERMS OF "PRESTIGE"

Rank 1.....	0	10	0	2	6	0	0	1	19
2.....	0	6	2	6	5	0	0	0	19
3.....	0	1	7	6	5	0	0	0	19
4.....	0	1	6	3	1	1	2	5	19
5.....	4	1	3	1	1	4	2	3	19
6.....	3	0	0	1	0	10	4	1	19
7.....	3	0	1	0	1	2	9	3	19
8.....	9	0	0	0	0	2	2	6	19
Total.....	19	19	19	19	19	19	19	19	
Not Stated.....	8	8	8	8	8	8	8	8	
Total Sample....	27	27	27	27	27	27	27	27	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	0	11	1	3	4	0	0	0	19
2.....	0	6	2	7	4	0	0	0	19
3.....	1	1	4	5	8	0	0	0	19
4.....	1	1	8	3	2	0	1	3	19
5.....	3	0	1	1	1	9	1	3	19
6.....	3	0	2	0	0	6	4	4	19
7.....	1	0	0	0	0	4	11	3	19
8.....	10	0	1	0	0	0	2	6	19
Total.....	19	19	19	19	19	19	19	19	
Not Stated.....	8	8	8	8	8	8	8	8	
Total Sample....	27	27	27	27	27	27	27	27	

¹ Excluding supervisors.

Table J—Entry Trade of Canadian- and Foreign-Trained Floor Moulders¹

First Full-Time Job	Canadian-Trained Floor Moulders	Foreign-Trained Floor Moulders
	Number	Number
Present trade.....	28	21
Related trade.....	1	1
Unrelated trade.....	42	5
Total.....	71	27

¹ Excluding supervisors.Table K—Reasons Given by Floor Moulders for Entering Their Trade¹

Reasons	Canadian-Trained	Foreign-Trained
	Number of Responses	Number of Responses
Relations.....	26	7
Interest.....	25	11
Pay.....	19	4
Job availability.....	18	7
Working conditions.....	2	0
Aptitude.....	2	0
Other reasons.....	4	2
Total number of responses.....	96	31

¹ Excluding supervisors.

Senior Draughtsmen

OCCUPATIONAL DESCRIPTION

The major duties of the senior draughtsman, as defined for the purposes of this study, are as follows:

Prepares working plans and detail drawings of cross sections, charts, maps and tracings from rough or detailed sketches or notes for engineering, construction or manufacturing purposes; draws to scale by use of draughting instruments; makes computations such as those involved in strength of materials, beams and trusses; verifies completed work, checking dimensions and types and quantities of materials to be used; writes specifications; makes necessary adjustments or changes in drawings or specifications. Utilizes knowledge of various machines, engineering practices, mathematics, building materials, and other physical sciences to complete drawings. May carry on duties in a specialized field, such as electrical, mechanical or structural draughting.

SAMPLE COVERAGE

The following table indicates the coverage for senior draughtsmen, showing the industries which were examined, the number of establishments included in each industry, and the number of workers who were interviewed.

Table A—Coverage of Sample of Senior Draughtsmen (including supervisors)

Industry	Number of Establishments			Number of Senior Draughtsmen		
	Toronto	Montreal	Total	Toronto	Montreal	Total
Agricultural implements.....	1	0	1	16	0	16
Fabricated structural steel.....	0	2	2	0	20	20
Heating and cooking apparatus.....	1	1	2	1	1	2
Iron castings.....	1	1	2	1	4	5
Special industrial machinery.....	2	4	6	14	19	33
Sheet metal products.....	2	1	3	3	1	4
Aircraft and parts.....	1	2	3	18	12	30
Motor vehicles.....	1	1	2	1	6	7
Motor vehicle parts and accessories	1	0	1	1	0	1
Railroad and rolling stock equip- ment.....	0	1	1	0	2	2
Shipbuilding and repairing.....	0	1	1	0	19	19
Brass and copper products.....	0	1	1	0	1	1
Heavy electrical machinery and equipment.....	2	1	3	3	2	5
Radio, television and other elec- tronic equipment.....	0	1	1	0	4	4
Electric light and power.....	1	0	1	42	0	42
15 industries.....	13	17	30	100	91	191

Table B—Pattern of Education and Training for Canadian-Trained Senior Draughtsmen¹

Pattern of Education and Training	Number of Senior Draughtsmen
INFORMALLY TRAINED SENIOR DRAUGHTSMEN.....	1
FORMALLY TRAINED SENIOR DRAUGHTSMEN.....	74
1. <i>Without Organized In-Plant Trade Training</i>	
General secondary school + part-time courses.....	9
Technical secondary school.....	6
Technical secondary school + part-time courses.....	13
University + general secondary school + part-time courses..	3
Other patterns (eighteen).....	19
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + general secondary school + part-time courses.....	4
Other patterns (thirteen) ²	20
Sub total.....	74
Total number of Canadian trained senior draughtsmen.....	75

¹ Excluding supervisors.

² Includes miscellaneous patterns for draughtsmen with apprenticeship and non-apprenticeship backgrounds.

Table C—Pattern of Education and Training for Foreign-Trained Senior Draughtsmen¹

Pattern of Education and Training	Number of Senior Draughtsmen
INFORMALLY TRAINED SENIOR DRAUGHTSMEN.....	0
FORMALLY TRAINED SENIOR DRAUGHTSMEN.....	81
1. <i>Without Organized In-Plant Trade Training</i>	
Secondary school ²	3
Secondary school + part-time courses.....	10
Institute of technology.....	4
Institute of technology + part-time courses.....	4
University.....	8
Secondary school + special short course.....	3
Other patterns (three).....	5
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + secondary school.....	21
Apprenticeship + secondary school + part-time courses.....	9
Apprenticeship + institute of technology.....	4
Other patterns (seven) ³	10
Total number of foreign-trained senior draughtsmen.....	81

¹ Excluding supervisors.

² Trade related courses.

³ Includes miscellaneous patterns for draughtsmen with apprenticeship and non-apprenticeship backgrounds.

Table D—Specific Type of Education and Training for Canadian- and Foreign-Trained Senior Draughtsmen¹

Type of Education and Training Received	Canadian-Trained Tradesmen			Foreign-Trained Tradesmen		
	Comp.	Incomp.	Total	Comp.	Incomp.	Total
Total Number of Tradesmen Covered.....	—	—	75 ²	—	—	81 ²
<i>Full-Time Training or Education</i>						
Primary school.....	75	0	75	81	0	81
Secondary school.....	43	30	73	59	20	79 ³
(1) General.....	17	12	29	—	—	—
(2) Technical.....	24	15	39	—	—	—
(3) Other.....	2	3	5	—	—	—
Institute of technology.....	3	2	5	16	3	19
University.....	3	2	5	6	4	10
Organized in-plant trade training	14	10	24	38	7	45
(1) Apprenticeship with classroom instruction.....	2	1	3	32	3	35
(2) Apprenticeship without classroom instruction.....	2	8	10	5	2	7
(3) Non-Apprenticeship with classroom instruction.....	7	1	8	0	1	1
(4) Non-Apprenticeship without classroom instruction.....	3	0	3	1	1	2
Armed services.....	8	0	8	7	0	7
Trades and industrial institute..	2	4	6	0	0	0
Special short course.....	11	0	11	5	0	5
Part-Time Trade-Related Courses	—	—	52	—	—	35

¹ Excludes supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

³ Due to the variety of educational systems, no classification of secondary schools by specific type was possible.

Table E—Specific Type of Education and Training for Canadian-Trained Senior Draughtsmen by Period in which Major Part of Training was Received¹

Type of Education and Training Received	Period in which Major Part of Training Received			
	Before 1930	1930-1939	1940-1945	After 1945
	Total	Total	Total	Total
Total Number of Tradesmen Covered..	7 ²	13 ²	21 ²	34 ²
<i>Full-Time Training or Education</i>				
Primary school.....	7	13	21	34
Secondary school.....	7	13	21	32
(1) General.....	6	5	8	10
(2) Technical.....	1	6	11	21
(3) Other.....	0	2	2	1
Institute of technology.....	0	1	0	4
University.....	0	0	0	5
Organized in-plant trade training.....	2	8	6	8
(1) Apprenticeship with classroom instruction.....	0	1	1	1
(2) Apprenticeship without classroom instruction.....	2	3	3	2
(3) Non-Apprenticeship with classroom instruction.....	0	3	2	3
(4) Non-Apprenticeship without classroom instruction.....	0	1	0	2
Armed services.....	1	1	2	4
Trades and industrial institute.....	0	1	2	3
Special short course.....	0	3	3	5
Part-Time Trade Related Courses.....	7	9	13	23

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

Table F—Estimated Amount of Formal Training Received by Canadian- and Foreign-Trained Senior Draughtsmen¹

Estimated Amount of Formal Training Received ²	Canadian-Trained	Foreign-Trained
	Number	Number
Less than one year.....	3	0
1 year to 1.9 years.....	9	1
2 years to 3.9 years.....	24	16
4 or more years.....	37	64
Sub Total.....	73	81
Training time not stated.....	1	0
Total number of formally trained senior draughtsmen.....	74	81
Total number of informally trained senior draughtsmen.....	1	0
Total number of senior draughtsmen.....	75	81

¹ Excluding supervisors.

² Includes all types of formal trade-related training, both pre-employment and post-employment.

Table H—How Canadian-Trained Senior Draughtsmen¹ Ranked Their Trade

Occupations Being Ranked

	Draughts- man	Prof. Eng.	Elect. Tech.	Tool and Die Maker	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
IN TERMS OF "PREFERENCE"									
Rank 1.....	2	64	3	1	0	0	0	0	70
2.....	37	5	22	6	0	0	0	0	70
3.....	24	0	28	13	0	5	0	0	70
4.....	5	1	10	40	0	10	0	4	70
5.....	2	0	2	8	15	27	9	7	70
6.....	0	0	2	2	20	21	15	10	70
7.....	0	0	1	0	17	5	30	17	70
8.....	0	0	2	0	18	2	16	32	70
Total.....	70	70	70	70	70	70	70	70	
Not Stated.....	5	5	5	5	5	5	5	5	
Total Sample....	75	75	75	75	75	75	75	75	

IN TERMS OF "PRESTIGE"									
Rank 1.....	0	65	4	0	0	0	0	0	69
2.....	15	4	41	7	0	0	0	2	69
3.....	28	0	18	18	0	0	0	5	69
4.....	20	0	5	28	1	3	1	11	69
5.....	5	0	1	13	7	18	8	17	69
6.....	1	0	0	3	17	28	14	6	69
7.....	0	0	0	0	24	14	24	7	69
8.....	0	0	0	0	20	6	22	21	69
Total.....	69	69	69	69	69	69	69	69	
Not Stated.....	6	6	6	6	6	6	6	6	
Total Sample....	75	75	75	75	75	75	75	75	

IN TERMS OF "OCCUPATION FOR SON"									
Rank 1.....	0	67	3	0	0	0	0	0	70
2.....	27	1	35	7	0	0	0	0	70
3.....	38	2	22	14	0	2	0	2	70
4.....	14	0	7	33	2	7	0	7	70
5.....	1	0	1	13	11	24	5	15	70
6.....	0	0	1	3	14	27	17	8	70
7.....	0	0	1	0	16	8	30	15	70
8.....	0	0	0	0	27	2	18	23	70
Total.....	70	70	70	70	70	70	70	70	
Not Stated.....	5	5	5	5	5	5	5	5	
Total Sample....	75	75	75	75	75	75	75	75	

¹ Excluding supervisors.

Table I—How Foreign-Trained Senior Draughtsmen¹ Ranked Their Trade

Occupations Being Ranked

	Draughts- man	Prof. Eng.	Elect. Tech.	Tool and Die Maker	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	6	64	4	2	0	0	0	0	76
2.....	44	8	19	5	0	0	0	0	76
3.....	17	3	38	13	1	3	0	1	76
4.....	7	1	8	44	4	4	1	7	76
5.....	1	0	1	8	14	38	6	8	76
6.....	1	0	2	2	22	19	20	10	76
7.....	0	0	1	2	21	9	28	15	76
8.....	0	0	3	0	14	3	21	35	76
Total.....	76	76	76	76	76	76	76	76	
Not Stated.....	5	5	5	5	5	5	5	5	
Total Sample....	81	81	81	81	81	81	81	81	

IN TERMS OF "PRESTIGE"

Rank 1.....	1	64	6	0	0	0	0	1	72
2.....	20	7	30	9	0	0	0	6	72
3.....	26	1	27	14	0	0	0	4	72
4.....	20	0	6	26	1	3	0	16	72
5.....	3	0	2	19	8	22	7	11	72
6.....	1	0	1	3	20	27	13	7	72
7.....	1	0	0	1	17	15	27	11	72
8.....	0	0	0	0	26	5	25	16	72
Total.....	72	72	72	72	72	72	72	72	
Not Stated.....	9	9	9	9	9	9	9	9	
Total Sample....	81	81	81	81	81	81	81	81	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	1	61	8	1	0	0	0	0	71
2.....	26	7	30	5	0	1	0	2	71
3.....	33	1	21	14	0	2	0	0	71
4.....	9	1	7	38	1	6	2	7	71
5.....	1	0	2	12	10	28	5	13	71
6.....	1	0	1	1	20	20	17	11	71
7.....	0	1	1	0	23	10	24	12	71
8.....	0	0	1	0	17	4	23	26	71
Total.....	71	71	71	71	71	71	71	71	
Not Stated.....	10	10	10	10	10	10	10	10	
Total Sample....	81	81	81	81	81	81	81	81	

¹ Excluding Supervisors.

Table J—Entry Trade of Canadian- and Foreign-Trained Senior Draughtsmen¹

First Full-Time Job	Canadian-Trained Senior Draughtsmen	Foreign-Trained Senior Draughtsmen
	Number	Number
Present Trade.....	29	41
Related Trade.....	6	15
Unrelated Trade.....	40	25
Total.....	75	81

¹ Excluding supervisors.

Table K—Reasons Given by Senior Draughtsmen for Entering Their Trade¹

Reasons	Canadian-Trained	Foreign-Trained
	Number of Responses	Number of Responses
Interest.....	46	49
Aptitude.....	23	15
Relations.....	10	19
Working Conditions.....	6	0
Job Availability.....	6	9
Pay.....	5	4
Hobbies.....	2	0
Armed Service Training.....	1	0
Other Reasons.....	5	7
Total Number of Responses.....	104	103

¹ Excluding supervisors.

Electronic Technicians

OCCUPATIONAL DESCRIPTION

The main duties of an electronic technician, as defined for the purposes of this study, are as follows:

Electronic technician is a general title used to describe a wide variety of jobs requiring considerable experience and familiarity with basic electronic theory, circuits, and test equipment.

Broadly speaking, the electronic technician fabricates, installs, maintains and repairs electronic apparatus and equipment used in communication, detection, measurement and control systems, such as radar, proximity fuses, armament sighting and control systems, electronic computers, electronic instrument and control devices—including those for special application in meteorological, geophysical, medical, industrial process fields and television and radio (including broadcasting equipment).

More specifically, the electronic technician determines characteristics of circuits, using signal generator, oscilloscope, and other electronic testing devices to locate defects; tests circuit voltages and resistances, following schematic diagrams, to isolate cause of defect; tests and replaces tubes, and replaces defective parts; aligns various stages; in making repairs, uses electrician's hand tools, such as pliers, screw drivers, wrenches and soldering irons; after making repairs, adjusts equipment to proper operating condition.

In research or laboratory work, the electronic technician assists engineers in the construction and testing of experimental models or designs, working from blueprints or wiring diagrams. In the manufacture of electronic equipment, he assists production engineers to maintain quality control and may be employed as quality inspector, final tester, precision inspector, trouble shooter, skilled aligner and phaser, and in other quality control jobs.

SAMPLE COVERAGE

The following table indicates the coverage for electronic technicians, showing the industries which were examined, the number of establishments included in each industry, and the number of workers who were interviewed.

Table A—Coverage of Sample of Electronic Technicians (including supervisors)

Industry	Number of Establishments			Number of Electronic Technicians		
	Toronto	Montreal	Total	Toronto	Montreal	Total
Heating and cooking apparatus...	1	0	1	1	0	1
Sheet metal products.....	1	0	1	1	0	1
Aircraft and parts.....	2	1	3	25	1	26
Heavy electrical machinery and equipment.....	2	2	4	2	5	7
Radio, television and other electronic equipment.....	4	3	7	50	39	89
Refrigerators, vacuum cleaners, and appliances.....	1	0	1	1	0	1
Miscellaneous electrical products..	0	1	1	0	2	2
Radio and television broadcasting..	2	2	4	18	17	35
Electric light and power.....	2	0	2	2	0	2
9 industries.....	15	9	24	100	64	164

Table B—Pattern of Education and Training for Canadian-Trained Electronic Technicians¹

Pattern of Education and Training	Number of Electronic Technicians
INFORMALLY TRAINED ELECTRONIC TECHNICIANS.....	3
General secondary school.....	3
FORMALLY TRAINED ELECTRONIC TECHNICIANS.....	99
1. <i>Without Organized In-Plant Trade Training</i>	
Primary school + part-time courses.....	3
General secondary school + part-time courses.....	11
Technical secondary school + part-time courses.....	17
Other secondary school + part-time courses.....	3
Institute of technology + general secondary school.....	3
Institute of technology + general secondary school + part-time courses.....	5
Institute of technology + technical secondary school.....	5
Institute of technology + technical secondary school + part-time courses.....	4
Trades and industrial institute + general secondary school + part-time courses.....	7
Trades and industrial institute + technical secondary school.....	3
Armed services + general secondary school + part-time courses....	10
Other patterns (twenty-one).....	26
2. <i>With Organized In-Plant Trade Training</i> ²	2
Total number of Canadian-trained electronic technicians.....	102

¹ Excluding supervisors.

² Because of the small number involved no specific patterns are shown.

Table C—Pattern of Education and Training for Foreign-Trained Electronic Technicians¹

Pattern of Education and Training	Number of Electronic Technicians
INFORMALLY TRAINED ELECTRONIC TECHNICIANS.....	1
FORMALLY TRAINED ELECTRONIC TECHNICIANS.....	45
1. <i>Without Organized In-Plant Trade Training</i>	
Secondary school + part-time courses.....	6
University + secondary school + armed services + part-time courses.....	3
Trades and industrial institute + secondary school.....	3
Armed services + secondary school.....	10
Armed services + secondary school + part-time courses.....	6
Other patterns (four).....	4
2. <i>With Organized In-Plant Trade Training</i>	
Apprenticeship + secondary school + part-time courses.....	7
Apprenticeship + secondary school + armed services + part-time courses.....	3
Other patterns (three) ²	3
Total number of foreign-trained electronic technicians.....	46

¹ Excluding supervisors.

² Includes miscellaneous patterns for tradesmen with apprenticeship and non-apprenticeship backgrounds.

Table D—Specific Type of Education and Training for Canadian- and Foreign-Trained Electronic Technicians¹

Type of Education and Training Received	Canadian-Trained Electronic Technicians			Foreign-Trained Electronic Technicians		
	Comp.	Incomp.	Total	Comp.	Incomp.	Total
Total Number of Tradesmen Covered.....	102	0	102 ²	46	0	46 ²
<i>Full-Time Training or Education</i>						
Primary School.....	102	0	102	46	0	46
Secondary School.....	66	34	100	33	13	46 ³
(1) General.....	37	15	52	—	—	—
(2) Technical.....	25	15	40	—	—	—
(3) Other.....	4	4	8	—	—	—
Institute of Technology.....	18	2	20	1	1	2
University.....	2	4	6	0	3	3
Organized In-Plant Trade Training.....	1	1	2	12	1	13
(1) Apprenticeship with classroom instruction.....	0	1	1	7	1	8
(2) Apprenticeship without classroom instruction....	0	0	0	5	0	5
(3) Non-Apprenticeship with classroom instruction....	1	0	1	0	0	0
(4) Non-Apprenticeship without classroom instruction	0	0	0	0	0	0
Armed Services.....	31	0	31	24	0	24
Trades and industrial institute..	15	0	15	6	0	6
Special short course.....	4	0	4	0	1	1
Part-Time Trade Related Courses	—	—	75	—	—	31

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

³ Due to the variety of educational systems, no classification of secondary schools by specific type was possible.

Table E—Specific Type of Education and Training for Canadian-Trained Electronic Technicians by Period in which Major Part of Training was Received¹

Type of Education and Training Received	Before 1930	1930-1939	1940-1945	After 1945
Total Number of Tradesmen Covered..	2 ²	7 ²	39 ²	54 ²
<i>Full-Time Training or Education</i>				
Primary School.....	2	7	39	54
Secondary School.....	2	6	39	53
(1) General.....	0	4	21	27
(2) Technical.....	2	2	13	23
(3) Other.....	0	0	5	3
Institute of technology.....	0	0	6	14
University.....	0	0	3	3
Organized In-Plant Trade Training....	0	0	1	1
(1) Apprenticeship with classroom instruction.....	0	0	1	0
(2) Apprenticeship without classroom instruction.....	0	0	0	0
(3) Non-Apprenticeship with classroom instruction.....	0	0	0	1
(4) Non-Apprenticeship without classroom instruction.....	0	0	0	0
Armed Services.....	0	0	20	11
Trades and industrial institute.....	0	0	7	8
Special short course.....	0	0	3	1
Part-Time Trade Related Courses.....	2	6	26	41

¹ Excluding supervisors.

² Category totals exceed total number of tradesmen covered because tradesmen may appear in more than one category.

Table F—Estimated Amount of Formal Training Received by Canadian- and Foreign-Trained Electronic Technicians¹

Estimated Amount of Formal Training Received ²	Canadian-Trained	Foreign-Trained
Less than one year.....	5	3
1 year to 1.9 years.....	33	10
2 years to 3.9 years.....	21	17
4 or more years.....	40	15
Total number of formally trained electronic technicians.....	99	45
Total number of informally trained electronic technicians.....	3	1
Total number of electronic technicians.....	102	46

¹ Excluding supervisors.

² Includes all types of formal trade related training, both pre-employment and post-employment.

Table H—How Canadian-Trained Electronic Technicians¹ Ranked Their Trade

Occupations Being Ranked

—	Elect. Tech.	Prof. Eng.	Tool and Die Maker	Draughts- man	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
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IN TERMS OF "PREFERENCE"

Rank 1.....	10	85	1	0	0	0	0	0	96
2.....	74	5	8	7	1	0	0	1	96
3.....	10	4	29	46	1	1	0	5	96
4.....	2	2	36	31	2	8	0	15	96
5.....	0	0	19	5	8	40	8	16	96
6.....	0	0	1	2	22	31	27	13	96
7.....	0	0	2	1	34	12	34	13	96
8.....	0	0	0	4	28	4	27	33	96
Total.....	96	96	96	96	96	96	96	96	
Not Stated.....	6	6	6	6	6	6	6	6	
Total Sample....	102	102	102	102	102	102	102	102	

IN TERMS OF "PRESTIGE"

Rank 1.....	1	92	0	1	0	0	0	0	94
2.....	49	1	17	22	0	0	1	4	94
3.....	23	1	26	35	0	0	0	9	94
4.....	18	0	30	27	0	4	1	14	94
5.....	3	0	18	5	7	27	8	26	94
6.....	0	0	2	0	24	38	21	9	94
7.....	0	0	1	0	31	19	34	9	94
8.....	0	0	0	4	32	6	29	23	94
Total.....	94	94	94	94	94	94	94	94	
Not Stated.....	8	8	8	8	8	8	8	8	
Total Sample....	102	102	102	102	102	102	102	102	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	2	91	2	0	0	0	0	1	96
2.....	64	4	6	22	0	0	0	0	96
3.....	19	0	26	41	1	0	0	9	96
4.....	10	1	36	24	1	7	0	17	96
5.....	1	0	23	2	8	34	9	19	96
6.....	0	0	2	2	28	29	24	11	96
7.....	0	0	1	2	35	21	24	13	96
8.....	0	0	0	3	23	5	39	26	96
Total.....	96	96	96	96	96	96	96	96	
Not Stated.....	6	6	6	6	6	6	6	6	
Total Sample....	102	102	102	102	102	102	102	102	

¹ Excluding supervisors.

Table I --How Foreign-Trained Electronic Technicians¹ Ranked Their Trade

Occupations Being Ranked

	Elect. Tech.	Prof. Eng.	Tool and Die Maker	Draughts- man	Floor Moulder	Sheet Metal Worker	Punch Press Operator	Office Worker	Total
IN TERMS OF "PREFERENCE"									
Rank 1.....	1	38	0	1	0	0	0	0	40
2.....	36	1	0	3	0	0	0	0	40
3.....	3	0	13	24	0	0	0	0	40
4.....	0	1	20	10	0	2	1	6	40
5.....	0	0	7	1	3	17	2	10	40
6.....	0	0	0	1	11	11	10	7	40
7.....	0	0	0	0	12	9	16	3	40
8.....	0	0	0	0	14	1	11	14	40
Total.....	40	40	40	40	40	40	40	40	
Not Stated.....	6	6	6	6	6	6	6	6	
Total Sample....	46	46	46	46	46	46	46	46	

IN TERMS OF "PRESTIGE"

Rank 1.....	0	38	0	0	0	0	0	0	38
2.....	22	0	4	9	0	0	0	3	38
3.....	10	0	4	16	0	0	0	8	38
4.....	4	0	16	10	1	1	0	6	38
5.....	2	0	11	2	4	11	3	5	38
6.....	0	0	1	1	9	13	11	3	38
7.....	0	0	1	0	14	10	10	3	38
8.....	0	0	1	0	10	3	14	10	38
Total.....	38	38	38	38	38	38	38	38	
Not Stated.....	8	8	8	8	8	8	8	8	
Total Sample....	46	46	46	46	46	46	46	46	

IN TERMS OF "OCCUPATION FOR SON"

Rank 1.....	0	39	1	0	0	0	0	0	40
2.....	28	1	3	7	0	0	0	1	40
3.....	10	0	7	19	0	1	0	3	40
4.....	2	0	19	11	0	2	0	6	40
5.....	0	0	10	3	1	16	2	8	40
6.....	0	0	0	0	18	12	7	3	40
7.....	0	0	0	0	12	7	16	5	40
8.....	0	0	0	0	9	2	15	14	40
Total.....	40	40	40	40	40	40	40	40	
Not Stated.....	6	6	6	6	6	6	6	6	
Total Sample....	46	46	46	46	46	46	46	46	

¹ Excluding supervisors.

Table J—Entry Trade of Canadian- and Foreign-Trained Electronic Technicians¹

First Full-Time Job	Canadian-Trained Electronic Technicians	Foreign-Trained Electronic Technicians
	Number	Number
Present Trade.....	32	22
Related Trade.....	12	11
Unrelated Trade.....	57	13
Sub Total.....	101	46
Not Stated.....	1	0
Total.....	102	46

¹ Excluding supervisors.

Table K—Reasons Given by Electronic Technicians for Entering Their Trade¹

Reasons	Canadian-Trained	Foreign-Trained
	Number of Responses	Number of Responses
Interest.....	86	40
Hobbies.....	35	13
Aptitude.....	16	10
Relations.....	10	9
Pay.....	8	2
Armed service training.....	2	3
Job availability.....	2	2
Working conditions.....	1	0
Other reasons.....	10	2
Total number of responses.....	170	81

¹ Excluding supervisors.

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